Tennessee Agricultural Research and Extension System
Annual Report of Accomplishments and Results
FY 2000

The University of Tennessee Agricultural Experiment Station
The University of Tennessee Agricultural Extension Service
The Tennessee State University Cooperative Extension Program

GOAL 1: An agricultural system that is highly competitive in the global economy.

Overview

Major program/research areas included under Goal 1 of the Tennessee Agricultural Research and Extension System Plan of Work included: forages; value-added agricultural industries, agricultural management, beef management systems, crop production, the greens industry, soil and water conservation and limited-resource and small farmers. The following describes the projects and programs conducted by the UT Agricultural Experiment Station, the UT Agricultural Extension Service and the TSU Cooperative Extension Program in addressing these areas. More specific information related what was done and what impacts were achieved in each area is included under the Key Theme section.

Forages:

Approximately 40% of the agricultural income in Tennessee comes from directly from forages and forage-based production of beef cattle and dairy products. A research study to evaluate five different commonly used round hay bale storage methods was initiated on a local experiment station with the cooperation of the station superintendent. Extension educational programs on proper hay storage methods were presented at twelve locations to a total of 640 hay producers this past year. Three hundred and sixty (360) growers are expected to change their storage systems to improve quality and reduce dry matter losses. With a potential savings of $6.40 per ton of hay, 360 growers averaging 63.1 tons of hay per year will save more than $145,000 worth of hay.

Extension educational programs were also conducted across the state to inform producers about the need for forage testing. Vouchers for one free forage test were provided by Extension agents to encourage forage testing. In 1999, approximately 450 samples were submitted for forage testing. In 2000, that number had increased to approximately 640, a 40 percent increase.

University of Tennessee researchers have developed a new orchardgrass variety that has high yield and much higher persistence under high grazing pressure and drought conditions than ‘Benchmark’, the current most grown commercial variety. The UT variety has been approved for release and given the name ‘Persist’. With this new variety, bovine producers will have an alternative cool-season grass to tall fescue. It should be especially attractive for dairy farmers and to farmers who wish to produce hay in addition to grazing. Orchardgrass is considered to be more palatable and have higher nutritional value than tall fescue.

Value-Added Agricultural Industries:

Twenty-four producer-initiated, value-added projects from 20 counties were evaluated by a team of 10 specialists working in the UT Extension Agricultural Development Center. In addition, more than 2500 individuals participated in 32 outreach and training programs including educational exhibits, workshops, seminars and group meetings. Fifteen mass media releases provided local, regional and national exposure to value-added issues and information through print and radio media. Progress was made toward achieving the goals of three value-added market development projects. Five peer-reviewed publications and 8 departmental fact sheets were developed and utilized in a variety of outreach and educational opportunities. The ADC has completed in-depth, multi-disciplinary, team analyses of 50 value-added projects from 30 counties, conducted 13 market development surveys, provided instruction for more than 60 meetings, seminars and workshops, secured $117,000 from external sources for various market and industry development programs and developed 60 publications, fact sheets and resource materials for the overall enhancement of Tennessee's value-added agriculture mission. ADC project evaluations and analyses indicated annual gross revenue projections in excess of $20 million. Sixty percent of the completed projects have a product available on the market and it is estimated that 1.9 jobs have been created per completed project.

Agricultural Management and Marketing:

The University of Tennessee Agricultural Extension Service in 8 west Tennessee counties has participated in the activities of the Marketing Club Network over 100 farmers in this 8 county have attended. Survey results indicate that 76% of those attending have used the information. Twenty-five responded that, in using the information, they gained $302,500 over what they normally would have done. This is an average of $12,100 per farm.

In West Tennessee, 147 farm families developed crop and livestock budgets for their individual farms. In addition, forty farm families received educational training on developing and using farm records. In the area of marketing, 457 farmers attended workshops on how to develop a marketing strategy and 178 attended workshops on developing budgets for their farm. On an individual basis, 62 farmers received training on marketing strategies.

Extension also planned and conducted 3 meetings to highlight the benefits of using the MANAGE farm management computer software program with 106 in attendance. Extension also conducted 3 meetings on keeping farm records with 224 in attendance, and 3 workshops on using computers to manage the modern farm. There were also 4 meeting/workshop combinations conducted on marketing and dairy price risk with 143 dairy producers in attendance. Fifty-five farm families from 40 different farms participated in the confidential farm planning portion of the program. There was a total of 59 individual farm analyses completed by the families. There were an additional 24 farms involving 57 one-on-one sessions that received help developing, implementing, using, and analyzing a computerized record keeping system. All 24 farms developed computerized record systems. One farmer improved net cash discrepancy by $15,000 to less than $300 on $400,000 of gross sales.

Weekly market comments were prepared and distributed by Extension specialists via ACRES, DTN, Internet and e-mail to county agents, area specialists, agribusinesses and producers. Eight outlook teleconferences were held with 12 counties participating. One producer indicated that as a direct result of information received at a crop outlook presentation, $10,000 of additional income was received.

Financial record keeping is a vital function for farm owners/managers to be able to make informed financial decisions. Through May, 2000, 156 computerized record keeping workshops have been taught in Tennessee, reaching over 1,400 people. Workshops have been taught in 71 of Tennessee's 95 counties. These two-day workshops were taught using a portable computer lab, allowing farm families to input data and generate several financial forms, including cash flows, income statements, enterprise analyses, and tax information.

During the past year, Extension Agents and Area Specialists have planned intensively with over 500 Tennessee farm families in the MANAGE program. Many of these individuals were participants in the computerized record keeping workshops, and are in the process of implementing changes identified in the complete farm and financial planning process. Extension personnel worked with another 2,100 individuals in analyzing parts of their operations using enterprise and partial budgets.

Presentations on labor regulations were provided to over 600 tobacco producers in conjunction with traditional tobacco production county meetings. Workshops on labor management were also conducted at regional dairy field-days. An interactive software product was developed which allows producers and county extension professionals to reference labor regulations. An extensive train the trainer effort was conducted in conjunction with the labor regulation software. In an evaluation of computerized record keeping workshop, participants reported that 47% understood financial records better after attending the workshop, 32% changed record keeping methods after attending the workshop, 31% now use financial records for management decisions The average impact that the workshops had on participants was $800 per farm family. User surveys and comments made by farm families and agriculture leaders document the overall effectiveness of the MANAGE program. For example, 98% of the families have found the program useful and 96% stated they would utilize the program again.

In a separate program, 17 farm families utilized a complete farm analysis to evaluate their farm operation. Eight of these farm families were new MANAGE clientele. An estimated $100,000 improvement to net farm income or savings occurred as a result of the farm analysis. Some farm families changed, added or deleted enterprises based on the knowledge they gained by participating in a complete farm analysis. Over 3,500 farm families received a farm management newsletter.

Beef Management Systems:

Beef cattle producers are experiencing many changes in the beef supply chain, and information is becoming a critical part of the management and marketing of cattle. Beef cattle record keeping

software has been developed and distributed to 296 users in 27 states. Enterprise budgets were developed for beef cattle and forage enterprises and distributed to 2,000 producers. This production and economic data is enabling more beef cattle producers in Tennessee to improve their business management skills. Improved livestock records allow Tennessee's beef cattle producers to improve their efficiency. A quote from a user of the beef cattle record keeping software being distributed: "I use your software every day, and don't make any decisions without first checking my printouts. I can't manage my cow herd without this information."

In the Sweetwater Valley of Tennessee, emphasis in Extension beef programming has been placed on a planned breeding program using bulls of known genetics with bull leasing program. The multi-county Smoky Mountain Feeder Calf Association has worked with the East Tennessee Livestock Center to implement the Southeast Pride Plus program. Beef Quality Assurance training was held to certify beef producers. East Tennessee Livestock Center was very proactive in working with the local Co-op and the Pfizer Co. to provide medication at reduced cost and Electronic Identification Tags (EID) at no cost to consignors. Seven hundred head of cattle were marketed in a graded sale at Sweetwater. Prices received were $1.75 to $11.50 per hundred pounds higher than other graded sales that day. Approximately $25,000 was added to the value of cattle offered for sale.

Crop Production:

Within the past year, new soybean varieties, developed by Experiment Station researchers, have been released which offer greater net production potential for the Tennessee environment.

Changes in bio-technology for soybean production are happening at such a rapid rate that it is difficult for producers to assimilate the changes into their production strategies. Information from state variety trials and from standard county variety demonstrations of conventional and transgenic varieties was presented to soybean producers in county winter meetings, at farm tours and during field days. This information was included in production guides, in news articles, in farm journals, e-mails, phone calls, personal contacts, etc. A survey of soybean producers indicated that 80 percent made changes in their variety selection based on information received from UT Extension. One hundred percent of soybean farmers surveyed said that they had increased their knowledge about the use of Roundup Ready soybean varieties from UT Extension. Sixty percent of the 2000 crop year is believed to have been planted to Roundup Ready varieties. Use of Roundup Ready soybean varieties can reduce weed control cost by $5 to $7.50 per acre, resulting in an estimated herbicide savings of between $3.3 million to $4.95 million dollars for Tennessee soybean producers.

New cotton varieties with value-added genes are being offered for sale faster than can be evaluated by standard means. Tennessee county Extension agents participated with cotton variety demonstrations in their respective counties. Fifteen county variety demonstrations were evaluated with lint yields from each demonstration. In 1996, there was less than 1% of Tennessee cotton acreage planted to transgenic varieties. In 2000, 91% of Tennessee cotton acreage was planted to transgenic varieties. The use of Roundup Ready varieties has reduced

the use of herbicides with longer soil activity or carryover. The use of Bollgard gene has reduced the use of sprays for controlling the boll worm complex. Lint yields have also increased over conventional varieties.

The European Corn Borer and the Southwestern Corn Borer infestations have been increasing in corn fields over the past three years until they have reached critical levels in Tennessee. Extension educational programs were conducted to increase producers knowledge and use of all recommended production practices including the use of Bt hybrids. Yield information from the state and county variety trials from both conventional and transgenic hybrids was presented to producers in winter meetings, on farm tours and in revised corn production guides, news articles, phone calls, e-mails and through personal contacts. The Extension Corn Specialist and the Extension Entomologist working with county staff instituted a two year southwestern corn borer trapping program in the main corn growing areas of the state to monitor moth flights. Bt corn hybrids were grown on about 25 percent of the corn acreage in Tennessee in crop year 2000, an increase of 5 percent. In UT research, Bt corn hybrids have produced an average of 10 bushels or more corn per acre than non-Bt hybrids. The use of Bt corn gives the potential for an additional $2,950.000 dollars to Tennessee corn producers.

Extension organized and conducted a standard wheat variety testing program of 13 varieties in over 16 locations. Additional fertility demos involving nitrogen sources and poultry litter, four insecticide demos utilizing Gaucho/Warrior T for aphid control and subsequent control of BYD (Barley Yellow Dwarf Virus) were also conducted. Results were disseminated through: No-Till Field Day, Multi-County Wheat Field Day, production meetings, mass newsletter mailings, inservice training, farm and agribusiness visits, individual contacts and the Extension/Experiment Station websites. Producer selection (96%) of superior identified varieties resulted in a 2.30 bu/Acre yield increase worth $1.05 million dollars or $6.10/Acre on 172,800 acres of wheat. As a result of demonstrations, some 4000 acres of wheat were treated with Gaucho seed treatment, and an additional 4000 acres of wheat were treated with Warrior T post-emerge for the control of aphids and subsequent BYD (Barley Yellow Dwarf Virus). The resulting yield increase of 8 bu/Acre on 8,000 acres valued at $169,600.

West Tennessee IPM producers are facing an extreme crop loss due to the dry weather conditions. Producers have invested an average of $266 to $350 dollars per acre in this years cotton crop. Several defoliation treatments along with surfactants and tank mixers at different rates were applied to dry stressed cotton in demonstration trials. Defoliation trial information was summarized, generated and e-mailed to other counties to aid in their decision making process. Field day attendance was up 53% from last year due to farm crises. Defoliation costs were cut by an average of $5.00 dollars per acre. Impacting 280,000 plus acres in the seven counties, this resulted in an estimated total savings of $1,400,000 dollars in these seven counties. Producers indicated that Extension recommendations saved them an average of $4 to $8 dollars an acre in dealing with rates, timing and surfactants.

Three 1-day weed control schools were conducted and attended by 181 agricultural chemical dealers, applicators and sales personnel. Information was presented at 8 Experiment Station,

county or industry field days and tours involving 947 persons. Forty-nine weed control experiments were also conducted. The comprehensive weed control manual was revised and was made available on a limited basis on CD ROM. A weed control home page was created on the World Wide Web. These efforts helped to increase farmer confidence in these systems as evidenced by 60%, 79% and 4% of the soybean, cotton and corn acreage, respectively, in Tennessee, being planted to Roundup Ready varieties in 2000 compared to 1999.

Wheat variety demonstrations were planted in major wheat producing counties. Results from county demonstrations were e-mailed to county offices, presented at county field days, tours and county meetings. Yield information was presented at the West Tennessee Grain Conference and the multi-county wheat production conference. One county reports producers increased yields 5-10 bushels per acre by selecting varieties that were identified as superior varieties. Producers that selected one of the top varieties over one of the lower producing varieties could realize $12.50 to $25.00 more income per acre.

Another thrust within this area is to improve practices associated with vegetable production to a degree sufficient to provide East Tennessee tobacco producers with high income alternatives to tobacco production. The vegetable initiative is a consortium of research and extension faculty focused on varietal selection and management practices to improve the profitability of vegetable production in east Tennessee. Improvements have been made in production management. However, additional progress will be needed for vegetable production to compete effectively with the production of tobacco.

Another area of research and development involves the use of precision agriculture to reduce input usage while maintaining production levels and increasing net income. A complex set of new technologies to sense plant stress from nutrition of pests while moving through the field is being developed. Complementing these developments is the development of sprayer technology to effectively remediate identified problems on a spot basis. Development is progressing and patent protection for certain technologies has been sought.

Greens Industry:

Basic gardening literature was written or upgraded and distributed. Extension agents and Master Gardeners were provided with printed materials, slides and training to enable them to train additional Master Gardeners in 6 subject areas. New Master gardener programs were initiated in 4 counties.

A TSU Extension Home Horticulture Programming Team was organized to address the issues of home gardening, pesticide usage by home owners and training of volunteer Master Gardeners to extend the outreach of Cooperative Extension agents in their communities.

Eleven hundred Master Gardener trainees were enrolled and trained. Participants in local Master Gardener associations provided in excess of 45,000 hours of volunteer service to Extension and Tennessee communities this year. At $10 an hour this volunteer service has an estimated value

of $450,000. Over 40 percent of the training sessions for new volunteers are now done by trained volunteers. Volunteers are also conducting demonstrations, participating in diagnostic clinics, answering telephones, co-hosting weekly televison program, making home visits and participating in a myriad of other service projects which Extension would not be able to provide without the assistance of these volunteers.

Fifteen (15) three-hour Extension classes on small engine maintenance and operation were taught to a total of 532 master gardeners this past year. Pre-test evaluation scores averaged 17 of a possible 100 points. Post-test scores averaged 94.45 at the completion of the classes. Many of the master gardeners in the classes have used class information to teach other classes on this material. Owners of equipment are saving an average of $42 per small engine each year. Some own as many as 12 to 15 small engines which puts annual savings at over $500 per year per owner. Useful lives of engines were also increased by several years and fuel costs were reduced due to efficient engine operation. Estimated overall impact is $80 per engine per year.

A dogwood variety, developed by Experiment Station researchers, which is resistant to dogwood anthracnose is also being released. Patent protection is being sought for dogwood varieties which are resistant to powdery mildew. These varieties will permit the large horticulture industry in the State to produce and market higher quality products.

Soil and Water Conservation:

As a result of Extension educational programs, based on research results, farmer confidence was evident in the increased use of no-till production systems on 64% of soybean, 59% of corn and 50% of cotton acreages in 2000, up from 50%, 54% and 32%, respectively, in 1999.

Limited-Resource and Small Farmers:

In Tennessee, net farm income fell by eight percent from 1997 to 1998 and was forecasted to fall an additional five percent in 1999. Management and marketing strategies are needed to aid Tennessee farm families and assist agricultural industries to diversify and improve their operations, explore new markets and explore value-added products and alternate crops to fill the loss caused due to limit on tobacco acreage. Limited resource and small farmers have been especially affected by these situations. Problems of small-scale farm operators have traditionally included limited capital, un-even cash flow, lack of management skills, and limited land resources. Alternative crop and animal enterprises based on available resources and on appropriate technical knowledge can provide small-scale family farms with a competitive advantage. USDA Small Farms Assistance Program has played a key role in addressing this issue in Tennessee. TSU and UT Extension programs have collaborated to cost-share in a small farms and integrated pest management extension specialist position to provide educational programs to limited resource and small farmers to address their needs of farm enterprise diversification, farm produce marketing and best management practices. Additionally, UT Extension has assigned an extension agent in each county to work with small farmers. At TSU, a small farms programming team composed of agents and specialists has been organized to

provide coordinated planning, implementation and evaluation of programs. The TSU Cooperative Extension Program provided leadership to incorporate the USDA Small Farms Assistance Program into the ongoing extension programs with similar goals and initiatives. The Small Farms Assistance (SFA) program has been very successful in organizing small farmers into small cooperatives to pool their resources, reduce their inputs and overheads. Several field days and educational programs were held to demonstrate best management practices. The Small Farms Programming Team provided several educational workshops in a variety of subject matter areas: producing and marketing goats, alternative crop production, small farmer cooperatives/associations, niche marketing through local farmers markets and individual roadside farm produce stands. Field crop demonstrations were conducted in Franklin, Hardeman, Lawrence and Rutherford counties.

The TSU Extension livestock specialist helped organize the Tennessee Goat Producers Association, a 70-member association formed to help serve the educational, production and marketing needs of the goat producers in Tennessee. Needs assessment data have been collected from several hundred goat producers and analyzed to help identify and plan future applied research and Extension programs.

Small Farms Assistance (SFA) program specialists also provided technical assistance to approximately 450 small and limited resource farmers in 14 counties. The assistance through this program has helped several farmers to seek private banking and/or government loans to finance their struggling farm operations, re-evaluate their farm operations and make decisions about continuing in farming or seeking off-farm employment. A SFA success story is the formation of Northern Tennessee Farmers Association (NTFA). The NTFA submitted a proposal in collaboration with Small Farms Assistance (SFA) Program and the local Natural Resources Conservation Service (NRCS) officials and received monies for the construction of a greenhouse. This greenhouse is used to produce tobacco seedlings for members of the association and to experiment with alternative crops. The overall cost of production for tobacco farmers was reduced almost 60 percent or an average of $187.50 per acre. Similar efforts are underway to form Small Farmers Associations in Middle and Western Tennessee.

Home gardeners produce a significant quantity of vegetables and small fruits for their families and neighbors. TSU's home horticulture and master gardener program trains home gardeners and volunteers in appropriate production practices and safe use of home and garden pesticides. This educational program helps home gardeners use pesticides safely, efficiently, and protects the environment.

Other Areas of Accomplishment:

Improving Genetic Composition Animals:

Within the past year, animal scientists at the University of Tennessee cloned the first Jersey calf from an adult somatic cell. This success, while noteworthy, is only a first step toward improving the success of cloning efforts so that they may one day be sufficiently reliable to use for cloning

animals for improved production or providing animals of known genetic composition of more effective research.

Allocations for Goal 1 Projects and Activities:

UT 1862 Research:
Hatch - $2,612,691
Multistate - $590,310
Animal Health - $26,380
McIntire-Stennis - $350,408
State Outlays - $15,128,951

UT 1862 Extension:
Smith-Lever b and c - $3,340,300
Smith-Lever d - $69,979
State and County Allocations - $13,409,735

TSU 1890 Extension:
Smith-Lever b and c - $472,500
County Allocations - $52,500

FTE's for Goal 1:

UT 1862 Research - 63.1

UT 1862 Extension - 132.9

TSU 1890 Extension - 10.5

****

KEY THEME - SMALL FARM VIABILITY

Title:
Extension Small Farm Programs

Description:
TSU and UT Extension have collaborated to cost-share in a small farms and integrated pest management extension specialist position. This specialist works statewide to provide educational programs to limited resource and small farmers to address their needs of farm enterprise diversification, farm produce marketing and best management practices. Additionally, UT Extension has assigned an extension agent in each county to work with small farmers. At

TSU, a small farms programming team composed of agents and specialists has been organized to provide coordinated planning, implementation and evaluation of programs.

The recently hired forestry extension specialist is collaborating with several agencies, departments and individual farmers to meet the needs of forestland owners in Tennessee.

Tennessee State University Cooperative Extension Program provided leadership to incorporate the USDA Small Farms Assistance Program into the ongoing extension programs with similar goals and initiatives.

The Small Farms Assistance (SFA) program has been very successful in organizing small farmers into small cooperatives to pool their resources, reduce their inputs and overheads. Several field days and educational programs were held to demonstrate best management practices. One such field day was held at the Osborne family farm in Clarksville, Tennessee to show the results of the hard work of Northern Tennessee Farmers Association.

The Small Farms Programming Team provided several educational workshops in a variety of subject matter areas: producing and marketing goats, alternative crop production, small farmer cooperatives/associations, niche marketing through local farmers markets and individual roadside farm produce stands. Field crop demonstrations were conducted in Franklin, Hardeman, Lawrence and Rutherford counties.

Impact:
The TSU extension livestock specialist was instrumental in helping organize the Tennessee Goat Producers Association. The 70 member association was formed to help serve the educational, production and marketing needs of the goat producers in Tennessee. Need assessment data have been collected from several hundred goat producers and analyzed to help identify and plan future applied research and Extension programs.

Small Farms Assistance (SFA) program specialists provided technical assistance to approximately 450 small and limited resource farmers in 14 counties. The assistance through this program has helped several farmers to seek private banking and/or government loans to finance their struggling farm operations, re-evaluate their farm operations and make decisions about continuing in farming or seeking off-farm employment. One SFA success story is the formation of Northern Tennessee Farmers Association (NTFA). The NTFA submitted a proposal in collaboration with Small Farms Assistance (SFA) Program and the local Natural Resources Conservation Service (NRCS) officials and received monies for the construction of a greenhouse. This greenhouse is used to produce tobacco seedlings for members of the association and to experiment with alternative crops. The overall cost of production for tobacco farmers was reduced almost 60 percent or an average of $187.50 per acre. Similar efforts are underway to form Small Farmers Associations in Middle and Western Tennessee.

Funding Source:
Smith-Lever and State

Scope of Impact:
State Specific
****

KEY THEME - ANIMAL GENOMICS

Title:
Improving the efficiency of cloning

Description:
In August 2000 our research group produced Millenium, the first Jersey cloned in the United States from an adult somatic cell. Our research reaffirms that a somatic cell does not have to be induced into a "quiet" state before using it to clone an adult animal.

Impact:
Using somatic cells for the purpose of cloning adult animals demonostrates that cloning procedures are more straightforward than previously thought.

Funding Source:
Hatch and State

Scope:
State Specific
****

KEY THEME - PLANT GENOMICS

Title:
Germplasm development and cellular and molecular genetics of forage grasses

Description:
The University of Tennessee has developed a new orchardgrass variety that has high yield and much higher persistence under high grazing pressure and drought conditions than 'Benchmark', the current most grown commercial variety. The UT variety has been approved for release and given the name 'Persist'.

Impact:
Bovine producers will have an alternative cool-season grass to tall fescue. It should be especially attractive for dairy farmers and to farmers who wish to produce hay in addition to grazing. Orchardgrass is considered to be more palatable and have higher nutritional value than tall fescue.

Funding Source:
Hatch and State

Scope:
State specific
****

KEY THEME - AGRICULTURAL COMPETITIVENESS

Title:
Reducing Energy Costs in a Cotton Gin

Description:
Cotton gin owners must keep variable costs as low as possible to remain competitive. The average cotton gin has approximately 2000 horsepower connected load and uses $3.71 of electricity to process a bale of cotton. This electricity charge represents approximately 15% of the total variable cost associated with ginning a bale of cotton. Annual repair of electrical equipment can average around 5% of the total variable cost. Both electricity and electrical equipment repair costs can be significantly higher in gins that have inadequately installed and maintained electrical equipment.

A Tennessee Extension education program on electricity in the cotton gin was developed and taught across the cotton belt at the National Cotton Ginner's Short Courses in Stoneville, MS and Fresno, CA; the Mississippi State Gin Management Course; the Southeastern Cotton Ginner's state safety trainings and the Tennessee Cotton Ginner's safety training. The curriculum for this educational program included topics on basic electricity, motor branch-circuits, wire sizing, selection of proper fuses, maintenance of electrical wiring systems, motor control applications, troubleshooting electrical circuits and equipment, electrical equipment maintenance and electrical safety.

Impact:
Training programs for cotton gin employees have increased the awareness of and the importance of installing and maintaining electrical equipment in the gin. A total of 446 cotton ginners and cotton gin employees across the cotton belt received training on how to properly install safe and adequate wiring systems, how to prevent electrical equipment failure by paying close attention to operation and maintenance of electrical equipment and the importance of implementing an electrical safety program for gin employees. Only 25% of the gins represented indicated they had an electrical equipment maintenance program in place. Approximately 85% of the remaining gins indicated they saw the need to implement a maintenance program and planned to do so before the start of the 2000 ginning season.

Funding Source:
Extension, National Cotton Ginners Association, Southeastern Cotton Ginners Association.

Scope:
State specific
****

KEY THEME - AGRICULTURAL PROFITABILITY

Title:
The Marketing Club Network

Description:
The University of Tennessee Agricultural Extension Service in 8 west Tennessee counties has participated in the activities of the Marketing Club Network. The Marketing Club Network is jointly sponsored by the Extension Services in 9 states, Mississippi Farm Bureau, and Agrimark. On a monthly basis, these locations participate in a marketing conference call with nationally known and top cotton and grain analyst. In the past year, over 100 farmers in this 8 county have attended.

Impact:
Participating Network farmers have learned about the market outlook and marketing strategies that have had the potential to increase their net income. Survey results indicate that 76% of those attending have used the information presented at the Marketing Club Network Conference Calls. Twenty-five responded that, in using the information, they gained $302,500 over what they normally would have done. This is an average of $12,100 per farm.

Funding Source:
Smith-Lever, State and Private agribusiness funds

Scope:
Multistate Extension
****

Title:
Agricultural Commodity Producers in the area use Marketing and Management Strategies.

Description:
Producers in Chester, Decatur, Fayette, Hardeman, Hardin, Henderson, Madison, and McNairy Counties, Tenn. each year are faced with the decision of what kind and how much of a commodity to produce on their farm. Extension has planned and conducted twelve workshops on marketing trends and strategies. In addition, eight workshops were held where budget analysis and developing a crop and livestock plan were topics. The producers also received bi-monthly newsletters on production and marketing updates as related to the beef industry. Also, many farm families received individual instruction on the use of records as related to developing budgets and implementing a marketing strategy.

Impact:
In this area, 147 farm families developed crop and livestock budgets for their individual farms. In addition, forty farm families received educational training on developing and using farm records. In the area of marketing, 457 farmers attended workshops on how to develop a

marketing strategy and 178 attended workshops on developing budgets for their farm. On an individual basis, 62 farmers received training on marketing strategies. Selecting the right commodity to produce and marketing on a timely basis could easily increase revenue by ten percent. Based on this assumption, these farmers had the opportunity to increase income by as much as $2,560,000 by improving their management and marketing skills.

Funding Sources:
Smith-Lever and State

Scope:
State Specific
****

Title:
Management for a Lifetime

Description:
Tennessee agriculture is faced with lowered unit profit margins, commodity prices dictated by a global economy, much greater market volatility, increased regulations, and greater risk. A two-pronged approach was implemented to help farm families with their business management and marketing efforts. The first component involved the county Extension agents and area farm management specialists networking with the agricultural community to promote the Agricultural Extension Service's educational efforts in farm management and marketing. The second component was to provide intensive training one-on-one.

Extension planned and conducted 3 meetings to highlight the benefits of using the manage program with 106 in attendance. Extension also conducted 3 meetings on keeping farm records with 224 in attendance, and 3 workshops on using computers to manage the modern farm. There were also 4 meeting/workshop combinations conducted on marketing and dairy price risk with 143 dairy producers in attendance. One-on-one confidential planning sessions were also made available to area farm families through participation in the MANAGE farm management computer software program.

Impact:
During the year 55 farm families from 40 different farms did participate in the confidential farm planning portion of the program. There was a total of 59 individual farm analyses completed by the families. This exceeded the program goal of 50 families to provide intensive one-on-one training. These analyses consisted of preparing balance sheets, crop and livestock budgets, income statements, cash flow statements, risk management, and profit or loss projections. There were an additional 24 farms involving 57 one-on-one sessions that received help developing, implementing, using, and analyzing a computerized record keeping system.

A study of the 24 farms receiving one-on-one assistance revealed the following:

- All 24 farms developed computerized record systems.

- Sixteen farms are using Quicken.
- Eight farms are using Quickbooks.
- Twenty of the farms are using a computerized record keeping system.
- The 20 using their systems have the records up to date with their accounts balanced.
- Eight of the farms have coordinated these efforts with their tax accountants to monitor profit/loss, and tax implications before hand.
- One farmer improved net cash discrepancy by $15,000 to less than $300 on $400,000 of gross sales.
- Five of the farms are using the computerized programs to calculate payroll expenses and all employee benefits and taxes.

Another impact was the selection of McMinn County by the USDA Risk Management Agency as the Tennessee County to participate in the DOPP (dairy options pilot program) which is a USDA program to introduce dairy farmers to use dairy options to help manage price risk

With emphasis on price risk and marketing we sponsored the formation and organization of the McMinn Dairy Marketing Club with a membership of 9 dairy farmers. The club meets twice monthly and have had 13 meetings since they organized April, 2000. Already the members have had 3 conference calls, tracked 6 paper trades, applied for 2 grants to attend the Chicago Mercantile Exchange, and have signed contracts to participate in DOPP.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Beef Cattle Producers Increase Income Through Cooperative Marketing

Description:
Extension agents assisted beef producers in organizing the Lower Middle Tennessee Cattle Association (LMTCA). The LMTCA conducts a tele-auction cattle sale held eight times each year. Extension agents continue to serve as advisors to the association and inform beef producers of the advantages of selling cattle by this method.

Impact:
Approximately 135 producers marketed 14,426 head of cattle through the Lower Middle Tennessee Cattle Association video sale. Total sale volume amounted to $7,667,674. In comparison with Tennessee Weekly Auction Market prices, producers received $676,286 more from marketing their cattle in the video sale.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Tobacco Settlement Helps Tennessee Producers

Description:
Tennessee received $29 million of Phase II Tobacco Settlement money to distribute to growers and quota owners in 2000. The Tennessee Tobacco Farmers Certifying Board, charged with administrating the fund, had to decide on a distribution plan. A key aspect of this plan would involve how to allocate the money between producers and quota owners.

The Extension tobacco specialist was approached by the Certifying Board and asked to generate information to help guide the Board's decision about allocation between producers and quota owners. The specialist generated information pertaining to relative risk of production assumed by each group, and provided that to the Board. Based strongly on this information, the Board decided to allocate 80 % of the funds to growers. This compares to a 50 % allocation to growers in North Carolina and Kentucky.

Impact:
The 80 % allocation to growers amounted to about $23.2 million. When compared to a potential 50 % allocation ($14.5 million), the process leading to the 80 % allocation resulted in an additional $8.7 million for Tennessee tobacco producers.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Alternative Enterprises for Tennessee Producers

Description:
Many "traditional farmers" in Tennessee are searching for alternative enterprises with which they can supplement their agriculture income, and hopefully stay in business another year. These "traditional farmers" include both tobacco growers and row crop farmers. These growers (traditional row crop and tobacco farmers) were given informed, research based information, that helped them chose enterprises that are feasible to their situation. The advantages and

disadvantages of various enterprises, potential returns, as well as potential problems along the way were addressed through one-on-one contacts and group educational meetings.. Due to the potential returns of annual plasticulture strawberry production, this enterprise has been of great interest to many producers.

Impact:
Several growers in both West and East Tennessee have planted annual plasticulture strawberries in the fall of 2000. Others are now considering planting strawberries in the fall of 2001. Assuming they are able to produce a "normal crop", these growers should be able to realize net returns in the neighborhood of $10,000 per acre.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
USDA Cooperative Agricultural Pest Survey (CAPS) Program

Description:
The Tennessee CAPS program is a Cooperative Agreement between the University of Tennessee, Agricultural Extension Service (UTAES) and the United States Department of Agriculture, Animal and Plant Health Inspection Service, Plant Pest Quarantine (USDA-APHIS-PPQ). This cooperative effort is intended for the mutual benefit of the cooperators as well as the people of Tennessee and the United States.

The CAPS program produced needed pest survey information on high risk endemic and exotic pests which might occur in Tennessee. Pheromone insect traps were monitored at strategic locations to detect exotic and PPQ program pests that have a high possibility of occurring in Tennessee. Visual surveys were also conducted for high priority pests where pheromone traps were not available. The computer database at the UT AES Plant and Pest Diagnostic Center was monitored for new pests which might be state and county records in Tennessee.

Impact:
High priority pests were monitored during the year 2000 and all surveys were negative. This supported the USDA and State export certification programs and allowed Tennessee growers to sell their agricultural products in domestic and foreign markets. For example, due to repeated negative surveys for False Coddling Moth, African Cottonworm and Egyptian Cottonworm, field crops such as wheat and other small grains and cotton can be sold and moved in interstate and international commerce without restrictions.

Funding Source:

USDA-APHIS-PPQ and Smith-Lever Funds

Scope:
State Specific
****

Title:
Adding Value to Feeder Cattle Through Improved Health/Management and Marketing

Description:
Tennessee feeder cattle have a reputation for poor health and feedlot performance. This most probably results from the lack of a health/management program, lack of a planned breeding program and marketing calves as singles or in very small groups.

In the Sweetwater Valley of Tennessee, emphasis in Extension beef programming has been placed on a planned breeding program using bulls of known genetics with bull leasing program. The multi-county Smoky Mountain feeder Calf Association has worked with the East Tennessee Livestock Center to implement the Southeast Pride Plus program. Beef Quality Assurance training was held to certify beef producers. East Tennessee Livestock Center was very proactive in working with the local Co-op and the Pfizer Co. to provide medication at reduced cost and Electronic Identification Tags (EID) at no cost to consignors.

Impact:
Seven hundred head of cattle were marketed in a graded sale at Sweetwater. Prices received were $1.75 to $11.50 per hundred pounds higher than other graded sales that day. Approximately $25,000 was added to the value of cattle offered for sale. Producers are enthusiastic about the return on their investment and are interested in another sale next year. Five loads of the cattle went to a repeat buyer, a Nebraska feedlot, which plans to return feedlot and carcass data on the cattle.

Funding Source:
Smith-Lever, State and Private Agribusiness Funds

Scope:
State Specific
****

Title:
Market Outlook Information

Decription:
Due to volatile prices and narrow profit margins, crop and livestock producers need up-to-date information to make informed marketing decisions/pricing decisions. Weekly market comments were prepared and distributed by Extension specialists via ACRES, DTN, Internet and e-mail to

county agents, area specialists, agribusinesses and producers. Eight outlook teleconferences were held with 12 counties participating. Support information for the teleconferences was e-mailed to all counties and posted to the department homepage. Additional market outlook information was provided through county, area and statewide meetings. Outlook information is also provided via telephone and e-mail to county agents and producers.

Impact:
One producer indicated that as a direct result of information received at a crop outlook presentation, $10,000 of additional income was received. Examples of other comments were: "I read your comments each week and your market comments really help me to improve my prices."

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Enhancing Farm Profitability Through Improved Marketing Decisions

Description:
Increased price volatility has put more emphasis on efficient marketing. Current farm programs made the marketing decision more critical.

Extension marketing workshops, teleconferences, and farm organization presentations have been conducted across the state over the past year. Marketing presentations have also been made at area and county inservice training workshops. A computer program was developed by an Extension specialist to compare marketing decisions over a wide range of production and market possibilities. Marketing principles were taught and outlook scenarios discussed at 5 county meetings (72 participants); 5 state-wide teleconferences (44 download sites); and 6 inservice training workshops (90 participants).

Impact:
The past year had a potentially huge payback to producers had they followed an early-season pricing program recommended by Extension. As an indication, after the workshop, a couple explained why they were taking notes, so interested, asking questions, etc. The lady said that the previous year they had come to this same meeting and decided to follow the advice given at that meeting. She said: "We flat put $10,000 in our pocket..." just following the advice given at that year-earlier meeting and that they wanted to make sure to not miss meetings.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Farm and Financial Management

Description:
During the past year, a wide range of Extension farm and financial management programs were developed and delivered to farm families throughout the state. Educational efforts focused on farm record keeping, financial management, livestock information management, risk management, and labor management. Information was delivered through workshops, publications, software, web sites, newsletters, and teleconferences to Extension agents, Area Specialists, other State Specialists, farmers, and other industry participants.

Financial record keeping is a vital function for farm owners/managers to be able to make informed financial decisions. Through May, 2000, 156 computerized record keeping workshops have been taught in Tennessee, reaching over 1,400 people. Workshops have been taught in 71 of Tennessee's 95 counties. These two-day workshops were taught using a portable computer lab, allowing farm families to input data and generate several financial forms, including cash flows, income statements, enterprise analyses, and tax information.

During the past year, Extension Agents and Area Specialists have planned intensively with over 500 Tennessee farm families in the MANAGE program. Many of these individuals were participants in the computerized record keeping workshops, and are in the process of implementing changes identified in the complete farm and financial planning process. Extension personnel worked with another 2,100 individuals in analyzing parts of their operations using enterprise and partial budgets.

Beef cattle producers are experiencing many changes in the beef supply chain, and information is becoming a critical part of the management and marketing of cattle. Beef cattle record keeping software has been distributed to 296 users in 27 states. Enterprise budgets were developed for beef cattle and forage enterprises and distributed to 2,000 producers. This production and economic data is enabling more beef cattle producers in Tennessee to improve their business management skills.

Risk management was an integral part of all farm and financial management programs. Bi-monthly teleconferences, newsletter articles, and marketing clubs were used to teach producers basic risk management principles and discuss current risk management strategies.

Presentations on labor regulations were provided to over 600 tobacco producers in conjunction with traditional tobacco production county meetings. Workshops on labor management were also conducted at regional dairy field-days. An interactive software product was developed

which allows producers and county extension professionals to reference labor regulations. An extensive train the trainer effort was conducted in conjunction with the labor regulation software.

Impact:
The results of farm and financial management programs tend to accrue over time, in the form of better decisions and improved risk management. Examples of impacts can be summarized for several of the programs that received attention during the year.

In an evaluation and mail-back survey of computerized record keeping workshop participants, the following were reported:

82% changed their minds about record keeping
94% would attend an advanced workshop
99% would recommend the workshop to a friend
47% understood financial records better after attending the workshop
32% changed record keeping methods after attending the workshop
31% now use financial records for management decisions
The average impact that the workshops had on participants was $800 per farm family.

User surveys and comments made by farm families and agriculture leaders document the overall effectiveness of the MANAGE program. For example, 98% of the families have found the program useful and 96% stated they would utilize the program again.

Improved livestock records allow Tennessee's beef cattle producers to improve their efficiency. A quote from a user of the beef cattle record keeping software being distributed: "I use your software every day, and don't make any decisions without first checking my printouts. I can't manage my cow herd without this information." Similar testimonies were received from other users throughout the year.

Relationships with lenders and agribusiness managers were strengthened through cooperative efforts in risk management educational activities. Lenders thanked us for continuing to provide them and their clientele up-to-date information about the farm financial situation, as well as ideas for how to cope with the situation. Producers indicated that they had improved their knowledge and understanding of risk management and were using new tools, such as options and forward contracts, to manage their risk exposure.

Over 30 copies of the labor regulation software are in use by county extension professionals. The software has been used to respond to numerous questions from farm managers concerning labor regulatory issues. The effort has improved compliance with mandated record keeping, posting of notices and posters, wage and hour regulations and employment eligibility verification.

Funding Source:
Smith-Lever and State

Scope:
Multistate Extension
****

Title:
Reduction of Large Round Hay Bale Losses with Proper Storage

Description:
Income from beef cattle is a major source of income for state farmers. With 2.1 million head of cattle and over 200,000 horses, livestock owners feed over four million tons of hay annually. Hay production in the state was 3.79 million tons this past year. Of that total production, about 3 million tons was packaged as large round bales and stored outside without protection from weather damage.

A research study to evaluate five different commonly used round hay bale storage methods was initiated on a local experiment station with the cooperation of the station superintendent. All storage method evaluations are replicated three times annually to derive storage loss data from each method. This study is in year four of a five year program. Bales are weighed prior to storage and when removed from storage to measure dry matter losses from each storage method. Nutrient value changes in the bale during the storage period are recorded in addition to dry matter losses. Educational programs on proper hay storage methods were presented at twelve locations to a total of 640 hay producers this past year.

Impact:
Three hundred and sixty (360) growers are expected to change their storage systems to improve quality and reduce dry matter losses. With a potential savings of $6.40 per ton of hay, 360 growers averaging 63.1 tons of hay per year will save more than $145,000 worth of hay.

Funding Source:
Smith-Lever, Hatch and State

Scope:
Integrated Research and Extension
****
Title:
Agricultural Structures and Livestock Facilities Planning

Description:
Mistakes in building construction are quite common. Some of the mistakes are easily corrected, but most are not. Oftentimes the errors in constructing agricultural and livestock facilities stem from the failure to start with a complete building plan. It is not possible or even practical to correct all these existing mistakes in construction, however, future errors can be minimized with adequate plans and planning.

Extension provided on-site planning assistance to 16 agricultural producers to demonstrate the cost effectiveness of forward planning in the construction of their facilities. Nine special plans were prepared following these visits to assist producers in planning their new and/or remodeled agricultural facilities.

Planning assistance was also provided to 10 agricultural community organizations. Nine special plans were prepared to assist these organizations in planning various types of new and/or remodeled facilities.

Approximately 1175 standard plans for a wide variety of agricultural structures and livestock facilities were distributed. Approximately 30 percent (343) of these plans were distributed to Tennessee residents through regular extension channels. The rest were distributed in response to requests generated as a result of posting the Agricultural Building and Equipment Plan List on the department web site. Internet requests from 154 individuals for 832 plans were received. These requests came from Tennessee and 36 other states, two territories and five foreign countries.

Assistance as a participating team member was provided to the Fund for Rural America regional Beef Systems Computer Software Project. This project is a multi disciplinary cooperative project between The University of Tennessee Agricultural Extension Service and the University of Georgia Cooperative Extension Service. This project provided another opportunity to help insure that beef producers exercise good forward planning when designing their fencing, hay storage and cattle handling facilities.

Impact:
The costs of inadequate planning, poor site selection, inefficient farmstead arrangement, and improper ventilation do not appear in monthly expense statements; they appear in the form of increased labor, feed, medication, and manure handling costs. In other words, the effects of construction errors are not easily quantified because they are confounded with the effects of management practices.

The estimated construction value of the plans prepared in assisting these producers and community organization leaders is at least $2.2 million.

The producers assisted on these 16 farms experienced an average savings of at least fifteen hundred dollars ($1,500) in construction costs. An estimated total construction cost savings of $24,000 resulted from the use of research-based planning advice on these farms. The savings were mainly from decreased costs of concrete in the suggested plans compared to what would have been used in the producers' original planning ideas.

Agricultural structures and facilities represent long term investments, so the benefits of sound forward planning are not all evidenced immediately. The use of more efficient facilities will reduce the average operating costs on these 16 farms by at least fifty dollars per month over the twenty-year life of the facilities. So, the total operating cost savings is estimated at $192,000.

The long term savings will stem primarily from reduced labor for cleaning, reduced maintenance, and increased production resulting from improved animal comfort. Additional long term benefits of this educational effort are expected as neighboring producers see the results.

Funding Source:
Smith-Lever, Fund for Rural America regional Beef Systems Computer Software Project and State
****

Title:
Improving farm families' decision making skills in the areas of farm and financial management.

Description:
Many farm families do not keep sufficient records or do not fully utilize their records to analyze their farm operation and improve their farm management decisions made. Through the Extension-developed MANAGE computer software program, farm families are provided a thorough farm financial analysis. The analysis reviews current farm enterprises and evaluates changes or alternatives to the farm enterprise mix. New enterprises are evaluated based on local and state averages if there is no personal experience with the proposed enterprise. A farm management newsletter is mailed to farm families in an eight county area to provide updates on various farm management topics and to deliver farm management information to a broader base of farm families. Coordinating with agricultural agents, information is provided through farm schools/group meetings.

Impact:
Seventeen farm families utilized a complete farm analysis to evaluate their farm operation. Eight of these farm families were new MANAGE clientele. An estimated $100,000 improvement to net farm income or savings occurred as a result of the farm analysis. Some farm families changed, added or deleted enterprises based on the knowledge they gained by participating in a complete farm analysis. Over 3,500 farm families received the farm management newsletter.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Sheep and goat marketing in Tennessee

Description:

The increase in ethnic populations in the Bedford County are has led to an increase in demand for sheep and goats. The current Extension mailing list includes 638 producers in the area.

A producer training meeting was held in April featuring the goat specialist from Texas A&M. One hundred twenty producers attended from the mid-state area. An in-service was held for 25 Extension agents from the mid-state area.

Impact:
A survey of attendees indicated a 100 percent approval rating and adoption of recommended management practices. Marketing efforts continued jointly with Tennessee Livestock Producers Association, providing a cooperative market for more than 200 consignors, selling nearly 2,000 sheep and goats, for gross sales of more than $110,000.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

KEY THEME - ADDING VALUE TO NEW AND OLD AGRICULTURAL PRODUCTS

Title:
Stepping Up to Change: Evaluating and Expanding Value-Added Agriculture Enterprises in Tennessee

Description:
Programs, efforts and outreach of the University of Tennessee Agricultural Extension Service's Agricultural Development Center include a team of production, marketing and feasibility specialists to assist in the consideration, evaluation and development of value-added activities using agricultural products.

From October 1999 to September 2000, 24 producer-initiated, value-added projects from 20 counties were evaluated by a team of 10 specialists. In addition, more than 2500 individuals participated in 32 outreach and training programs including educational exhibits, workshops, seminars and group meetings. Fifteen mass media releases provided local, regional and national exposure to value-added issues and information through print and radio media. Substantial progress was made toward achieving the goals of three separate grant-funded, value-added market development projects including assessment of the Tennessee aquaculture industry, investigation of markets for value-added livestock waste products and development of case study interviews and market surveys. Five peer-reviewed publications and 8 departmental fact sheets were developed and utilized in a variety of outreach and educational opportunities.

Impact:

Since its inception in 1998, the ADC has completed in-depth, multi-disciplinary, team analyses of 50 value-added projects from 30 counties, conducted 13 market development surveys, provided instruction for more than 60 meetings, seminars and workshops, secured $117,000 from external sources for various market and industry development programs and developed 60 publications, fact sheets and resource materials for the overall enhancement of Tennessee's value-added agriculture mission. ADC project evaluations and analyses indicated annual gross revenue projections in excess of $20 million. Sixty percent of the completed projects have a product available on the market and it is estimated that 1.9 jobs have been created per completed project. The ADC has provided assistance and evaluation of new opportunities for farmers and rural communities to enhance incomes, prevent investments in infeasible enterprises and streamline the market development process.

Funding Source:
Smith-Lever, State and four external grant projects in market development projects aimed at enhancing value-added agriculture in Tennessee.

Scope:
State Specific
****

Title:
Adding Value to Agricultural Commodities- Entrepreneurship

Description:
Agriculture in Tennessee accounts for 14% of the State's economy and around $36 billion in output. However, Tennessee farm cash receipts decreased 10% in 1999. One method for overcoming decreases in marketing raw farm products is through the "value added" concept. Value can be added by processing, packaging and marketing raw agricultural commodities directly to consumers or vendors.

Extension specialists in Food Science and Technology have assisted non-farm and farm entrepreneurs with added value food processing in two ways, directly and through the Agricultural Development Center (ADC) of the University of Tennessee's Agricultural Extension Service. Direct assistance has been given to over 90 small, medium and large value added processors in the State of Tennessee in 2000. This assistance includes workshops to educate new processors, solving minor processing and shelflife problems, and assistance with regulatory interpretations. Through the collaborative efforts of the Food Science and Technology Specialists, five new wineries have initiated operations in 2000, three new meat-related businesses have started and an on-farm cheesemaking operation received technical and marketing assistance. Of the five new wineries, two were started on farms that previously raised tobacco. Through the ADC, Food Science and Technology Specialists have completed reviews of nine operating and proposed Tennessee food processing firms. Specialists participated in an ADC in-service for over 40 County Extension faculty.

Impact:
Over 100 small, medium and large food processors in the State of Tennessee have received assistance directly or through the Agricultural Development Center and from Specialists in Food Science and Technology. The impact of this technical assistance is economic and includes: (1) development and marketing of new, safe food products, (2) prevention of losses through compliance with State and Federal regulations, and (3) improvement of existing products (e.g., shelflife) and processes.

Funding source:
Smith-Lever and State

Scope:
State Specific
****

KEY THEME - ORNAMENTAL/GREEN AGRICULTURE

Title:
Master Gardeners/TSU Cooperative Extension Program Home Horticulture Programming Team/ Home Garden Production

Description:
Basic gardening literature was written or upgraded and distributed. Extension agents and Master Gardeners were provided with printed materials, slides and training to enable them to train additional Master Gardeners in 6 subject areas. New Master gardener programs were initiated in 4 counties. A statewide Master Gardener meeting addressing areas of concern was held.

A TSU Extension Home Horticulture Programming Team was organized to address the issues of home gardening, pesticide usage by home owners and training of volunteer Master Gardeners to extend the outreach of Cooperative Extension agents in their communities.

Impact:
The Tennessee Master Gardener Program expanded from 23 to 27 separate sites. Eleven hundred trainees were enrolled and trained and several counties have waiting lists to participate. Participants in local Master Gardener associations continued to increase and participants provided in excess of 45,000 hours of volunteer service to Extension and Tennessee communities this year. At $10 an hour this volunteer service has an estimated value of $450,000.

The impact of the Master Gardener Program is apparent on 3 levels. First, as is shown by the 45,000 hours of volunteer service, the outreach of Extension is multiplied by the volunteers. Over 40 percent of the training sessions for new volunteers are now done by trained volunteers. Volunteers are also conducting demonstrations, participating in diagnostic clinics, answering telephones, co-hosting weekly televison program, making home visits and participating in a

myriad of other service projects which Extension would not be able to provide without the assistance of these volunteers. Volunteers use their training to assist Extension.

Secondly, the Master Gardener volunteers themselves are impacted by the program. They develop awareness, appreciation and abilities that express themselves throughout their lives. Polls show that all Master Gardeners believe they have learned during their training and nearly all intend to use some of what they learned in their personal gardens. The materials learned is also used in volunteer service projects throughout Tennessee communities. These are projects which would not occur without the Master Gardener Program thus changes in behavior of the volunteers themselves.

Lastly, the public is impacted by the projects of Master Gardener volunteers. These impacts vary from interacting with Master Gardeners via television shows or at Lawn and Garden shows attended by thousands to individual on site visits with Master Gardeners.

Funding Source:
Smith-Lever and State

Scope of Impact:
State Specific
****

Title:
Small Engine Care and Maintenance for Master Gardeners

Description:
Fifteen (15) three-hour Extension classes on small engine maintenance and operation were taught to a total of 532 master gardeners this past year. Pre-test evaluation scores averaged 17 of a possible 100 points. Post-test scores averaged 94.45 at the completion of the classes. Many of the master gardeners in the classes have used class information to teach other classes on this material.

Impact:
Owners of equipment are saving an average of $42 per small engine each year. Some own as many as 12 to 15 small engines which puts annual savings at over $500 per year per owner. Useful lives of engines were also increased by several years and fuel costs were reduced due to efficient engine operation. Estimated overall impact is $80 per engine per year. With an estimated 12 million engines in the state, potential savings annually are $960 million if all owners attended the classes.

Funding Source:
Smith-Lever and State

Scope:

State Specific
****

KEY THEME - ANIMAL PRODUCTION EFFICIENCY

Title:
Increased use of forage testing by Tennessee forage producers

Description:
Large quantities of hay are produced each year in Tennessee. Most of the hay is fed to beef cows and calves during the winter months. Producers needed to know the nutrient content of that hay to be able to know if supplements are needed to meet the cattle nutrient requirements during the winter.

Extension educational programs were conducted across the state to inform producers about the need for forage testing. Vouchers for one free forage test were provided by Extension agents to encourage forage testing.

Impact:
In 1999, approximately 450 samples were submitted for forage testing. In 2000, that number had increased to approximately 640. This is a 40 percent increase over 1999.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Aquaculture

Description:
Extension education programs dealing with aquaculture continue to be in high demand. A survey of aquaculture activity in the state by a task force appointed by the Vice-President for Agriculture and the Agriculture Commissioner discovered a high percentage of positive and optimistic attitudes related to aquaculture, by both experienced and potential fish farmers. Inservice training for Extension agents continues to be an excellent method to get good usable information to the farmers. 78 agents each received 6 hours of aquaculture training with emphasis on water quality management. More that 200 pond owners learned best management aquaculture principles at workshops where seven new aquaculture publications were introduced and distributed. There are now more than 100 Southern Regional Aquaculture Center publications on a variety of topics that are available from county offices and from the specialist

office. These publications are available as hardcopy, on CD at county offices and on both departmental and Ag. Communications webpages. 38 fish farms in 23 counties were visited by request to address specific problems. Aeration of ponds to improve water quality has been a high priority this year. More than 50 aerator recommendations were made with publications outlining aeration principles and types of aerators provided. Interest in recirculation systems continues to grow but the economics of these systems are not encouraging. Good information helps people make good decisions and considerable money has been saved from poor investments. Interest is freshwater prawn pond culture is very high. At least 200 publication dealing with biology and production of prawn have been sent on request. An acre prawn pond demonstration was established on an experiment station. There are 30 acres in prawn production in the state this year. The ponds will be harvested in October. Results will influence future activities in this young enterprise, but prawn culture appears to have potential. The Tennessee Aquaculture Association continues to grow in numbers and interest. About 40 members participated in an annual meeting in Nashville in February for an all-day educational program.

Impact:
Extension agents and aquaculturists learned the importance of aeration on pond water quality at inservice training sessions and workshops. At least 45 pond owners installed aerators. Freshwater prawn ponds must be aerated and many other fish ponds are benefitted by aeration, also. Newspaper and magazine articles highlighted the potential for freshwater prawns as an alternative crop for tobacco farmers. Many farmers have learned what is involved in prawn production from the publications, from their county agents and from workshops. The 30 producers of prawns this year will likely be more than 100 next year. Success or failure of these production ponds to be harvested in early October will greatly influence subsequent investment and effort. Income from prawns cam be similar to tobacco from the same acreage. Algae and aquatic weeds identified and controlled with chemicals recommended by Extension improved harvest and saved labor in more than 200 acres of fish ponds. Catfish continue to be the leading culture species in production ponds and for fee-fishing. Both methods require strict control of plant growth to be successful. Fish parasites were treated by 35 producers after identification and treatment recommendations were made by Extension. Increased income from these management practices was about $167,000. Freshwater prawn production and income cannot presently be estimated until harvest is completed.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Economic Impact of Sow Longevity

Description:

Swine producers have been facing high replacement rates of breeding herd females. According to major production record keeping services, replacement rates have continued to increase. Swine producers have had a difficult time estimating the production or economic impact of increasing replacement rates of breeding herd females.

Extension developed a series of spreadsheets designed for farrow-to-finish, breed-to-wean, and breed-to-feeder pig operations. The spreadsheets calculate a Net Present Value of a breeding herd replacement female. The spreadsheet has been distributed to 15 U.S. states and 5 foreign countries. Seedstock representatives accounting for approximately 80% of the replacement gilts sold in the U.S. have been provided a copy of the spreadsheet.

Impact:
This tool helps producers recognize the production and hence, the economic impact of sow longevity. If producers fine tune their management skills and reduce the quantity of breeding herd replacement females by 10% on an annual basis, a savings of $500,000 would be realized by Tennessee swine producers and $49.6 million savings could by realized by the U.S. commercial swine production industry.

Funding Source:
Smith-Lever and State
****

Title:
Educating beekeepers to reduce honey bee colony losses to pests and diseases.

Description:
The honey bee is economically important to Tennessee agriculture as a pollinator of commercial crops valued annually in excess of $50 million and of home gardens valued at $60 million. Parasitic mites and associated diseases are responsible for 50% (20,000) losses of honey bee colonies.

Thirty-four meetings/workshops were conducted by Extension for county, state and regional beekeeping associations and farm producers to demonstrate detection and treatment for parasitic mites and diseases. Seventeen farm visits were made to producers. Ten interviews were given to media. Live bee demonstrations (20) were given at field days, to schools and 4-H camps. In-Service training (4) informed agents of current recommendations.

The Tennessee Beemaster program (5 days each - ten topics) was conducted in Knoxville, Jackson and Chattanooga for 57 beekeepers and extension agents from 13 different counties.

Impact:
Educational programs listed above have helped to reduce losses to beekeepers using recommended treatments to 25% of their colonies. Beekeepers have lost on average, 50% (20,000) colonies of honey bees due to parasitic mites. The value of each lost colony is

approximately $172 for bees, medications, and honey (retail). We estimate that beekeepers following recommendations saved 10,000 colonies valued in excess of $1,720,000 annually. This figure does not include suspected reduction in yield of fruits and vegetables that need pollination.

The Tennessee Beemaster Program increased enrollment with 57 new members (12.5% increase), for a total of 457 from 45 counties. In the 2000 Hobbyist Program, comparison of pre with post test scores indicated average improvements of 26% (Knoxville), and 19.5% (Jackson) and 45.9% (Chattanooga). The program evaluations indicated 95%, 92% and 92%, respectively of participants in the three sessions rated the program excellent or very good.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Effects of environmental stressors for reducing reproduction in farm animals

Description:
Exposure of farm animals to environmental stressors such as elevated temperature, reduces ability to reproduce. Reduced ability of farm animals to become pregnant, results in direct economic losses to livestock producers.

Our results demonstrate that the effects of elevated temperature occur very early on for reducing reproduction in dairy cattle. Specifically, exposure of oocytes to elevated temperature reduces ability to develop following fertilization. Negative effects of elevated temperature do not appear to alter nuclear events but cytoplasmic components of the oocyte.

Impact:
Gaining a further understanding of the negative effects of environmental stressors at the cellular and molecular level in oocytes and early embryos will be critical for development of novel strategies for improving reproduction and embryonic survival in face of stressful conditions.

Funding Source:
Hatch and State

Scope:
State Specific
****

KEY THEME - PLANT PRODUCTION EFFICIENCY

Title:
Use of Bio-Technology in Soybean Production

Description:
Changes in bio-technology for soybean production are happening at such a rapid rate that it is difficult for producers to assimilate the changes into their production strategies. Extension educational program objectives were to increase soybean producers knowledge and use of bio-technologies and use of all recommended production practices to help them increase yields and profits and improve their sustainability.

Information from state variety trials and from standard county variety demonstrations of conventional and transgenic varieties was presented to soybean producers in county winter meetings, at farm tours and during field days. This information was included in production guides, in news articles, in farm journals, e-mails, phone calls, personal contacts, etc.

Impact:
From a survey of soybean producers, 80 percent have made changes in their variety selection based on information received from the UT Agricultural Extension Service. One hundred percent of soybean farmers surveyed said that they had increased their knowledge about the use of Roundup Ready soybean varieties from the UT Extension Service. Sixty percent of the 2000 crop year is believed to have been planted to Roundup Ready varieties. The use of Roundup Ready soybean varieties can reduce weed control cost by $5 to $7.50 per acre. This would result in an out of pocket herbicide savings between $3.3 million to $4.95 million dollars for Tennessee soybean producers.

In the standard group V Roundup Ready variety test there was a 5 bushel difference between the top 4 varieties and the bottom 4 varieties. If 60 percent of the 1.1 million acres were planted to the top four high yielding transgenic varieties and there is a yield increase of 5 bushels/acre, then Extension has helped to increase the soybean yield by 3,300,000 bushels. If the increase in bushels is multiplied by the LDP price of $5.26 per bushel, there was an estimated increase in value of $17,358,000 for soybean producers.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Cotton Production with Transgenic Varieties

Description:

New cotton varieties with value-added genes are being offered for sale faster than can be evaluated by standard means. Information on Bollgard and Roundup Ready varieties is needed for producers to make good sound decisions in selecting varieties to meet their needs.

Tennessee county Extension agents participated with cotton variety demonstrations in their respective counties. Fifteen county variety demonstrations were evaluated with lint yields from each demonstration.

Impact:
Evaluation of transgenic cotton varieties on the farm by Tennessee Extension Services began in 1996. There was less than 1% of Tennessee cotton acreage planted to transgenic varieties. In 2000 there was 91% of Tennessee cotton acreage planted to transgenic varieties. The use of Roundup Ready varieties has reduced the use of herbicides with longer soil activity or carryover. The use of Bollgard gene has reduced the use of sprays for controlling the boll worm complex. Lint yields have increased over conventional varieties.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Use of Bio-Technology in Corn Production

Description:
The European Corn Borer and the Southwestern Corn Borer infestations have been increasing in corn fields over the past three years until they have reached critical levels in Tennessee. To insure a profitable bottom line, Tennessee corn producers must increase their knowledge and use of Bt corn hybrids to decrease yield loss from these two insects.

Extension educational programs were designed and conducted to increase producers knowledge and use of all recommended production practices including the use of Bt hybrids. Yield information from the state and county variety trials from both conventional and transgenic hybrids was presented to producers in winter meetings, on farm tours and in revised corn production guides, news articles, phone calls, e-mails and through personal contacts. The Extension Corn Specialist and the Extension Entomologist working with county staff instituted a two year southwestern corn borer trapping program in the main corn growing areas of the state to monitor moth flights.

Impact:
Bt corn hybrids were grown on about 25 percent of the corn acreage in Tennessee in crop year 2000. This was an increase of 5 percent over the previous year. In UT research, Bt corn hybrids

have produced an average of 10 bushels or more corn per acre than non Bt hybrids. Corn used for grain was grown on 590,000 acres. If 25 percent of this is Bt corn or 147,500 acres times 10 bushels per acre equals an additional 1,475,000 bushels. At $2.00 per bushel the use of Bt corn gives an additional $2,950.000 dollars to Tennessee corn producers.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Wheat Agronomics

Description:
Extension organized and conducted a standard wheat variety testing program of 13 varieties in over 16 locations, including Weakley County. Additional fertility demos involving nitrogen sources and poultry litter, four insecticide demos utilizing Gaucho/Warrior T for aphid control and subsequent control of BYD (Barley Yellow Dwarf Virus) were also conducted. Data were analyzed and disseminated through the following methods and events: No-Till Field Day, Multi-County Wheat Field Day, production meetings, mass newsletter mailing, inservice training, farm and agribusiness visits, individual contacts and the Extension/Experiment Station websites.

Impact:
Producer selection (96%) of superior identified varieties resulted in a 2.30 bu/Acre yield increase worth $1.05 million dollars or $6.10/Acre on 172,800 acres of wheat. As a result of demos comparing the effectiveness of insecticide treatment of wheat, some 4000 acres of wheat were treated with Gaucho seed treatment, and an additional 4000 acres of wheat were treated with Warrior T post-emerge for the control of aphids and subsequent BYD (Barley Yellow Dwarf Virus). The resulting yield increase of 8 bu/Acre on 8,000 acres valued at $169,600 for Weakley County producers.

Poultry litter was used on 500 acres at 2 Ton/Acre at seeding, then topdressed with only 35-50# nitrogen as per demonstration results.

Ninety-eight producers, agribusiness & Extension personnel from an 8 county area were taught current recommendations and the results of research demonstration work. For the 2001 crop year, over 20,000 units of seed treated with Gaucho insecticide for the control of aphids in Weakley County.

Funding Source:
Smith-Lever, State and Private Agribusiness Contributions

Scope of Impact:
Integrated Research and Extension
****

Title:
Defoliation of drought stressed cotton plants

Description:
Fayette, Shelby, Madison, Tipton, Haywood and Crockett County, Tenn. IPM producers are facing an extreme crop loss due to the dry weather conditions. Producers have invested an average of $266 to $350 dollars per acre in this years cotton crop.

Several defoliation treatments along with surfactants and tank mixers at different rates were applied to dry stressed cotton in demonstration trials. This information will be generated through evaluation and data pertaining to dry weather conditions for the 2000 cotton season.

Defoliation trial information was summarized, generated and e-mailed to other Extension Counties to aid in their decision making process. Field day attendance was up 53% from last year due to farm crises. Key influential people, who help producers make decisions year after year, were also present and aided in pre and post preparation.

Over 100 phone calls came in concerning advice and support for this valuable information.

Impact:
Producers lost yields this year due to hot dry conditions and the cost of cotton being around $.50 a pound with 600 lbs production needed to break even. Producers look to the Extension Service demonstration trials in Fayette and Haywood Counties to help cut cost on defoliation treatments. The costs were cut by an average of $5.00 dollars per acre. Impacting 280,000 plus acres in the seven counties, this resulted in an estimated total savings of $1,400,000 dollars in these seven counties.

Producers indicated that Extension recommendations saved them an average of $4 to $8 dollars an acre in dealing with rates, timing and surfactants. The field days and demonstration were also very useful, and timely to all Extension Agents, Chemical Reps, Chemical Suppliers, Cotton Consultants, and farmers trying to get a handle on the dry stressed cotton.

Funding Source:
Smith-Lever, State and private agribusiness funds

Scope:
State Specific
****

Title:

Improving farmer confidence in herbicide tolerant weed management systems.

Description:
Eight inservice training sessions were conducted and attended by 206 Tennessee Extension agents. These included 2 day-long in-field sessions. Similarly, 3 1-day weed control schools were conducted and attended by 181 agricultural chemical dealers, applicators and sales personnel. Information was presented at 8 Experiment Station, county or industry field days and tours involving 947 persons. Forty-nine weed control experiments were conducted. The comprehensive weed control manual was revised and was made available on a limited basis on CD ROM. A weed control home page was created on the World Wide Web.

Impact:
Utilization of herbicide tolerant crop based weed management programs offer effective, economical and environmentally sound production programs. Efforts through education helped to increase farmer confidence in these systems as evidenced by 60, 79 and 4% of the soybean, cotton and corn acreage in Tennessee, respectively, being planted to Roundup Ready varieties in 2000. Farmer confidence in these systems was also evident in utilization of no-till production systems. No-till represented 64, 59 and 50% of the soybean, corn and cotton acreage in 2000. This is compared to 50, 54 and 32%, respectively, in 1999. Confidence in weed management is essential for successful, sustainable no-till production.

Funding Source:
Smith-Lever, State and private agribusiness funds
****

Title:
Tennessee Wheat Production

Description:
Variety selection is one management area that is a top priority with wheat producers. The life of most wheat varieties is 4 to 6 years. This means a variety may only last 1 to 3 years after it is recommended.

To help address these needs, wheat variety demonstrations were planted in major wheat producing counties. Results from county demonstrations were e-mailed to county offices, presented at county field days, tours and county meetings. These yield information were presented to the West Tennessee Grain Conference and the multi-county wheat production conference.

Impact:
Wheat yields for many producers have increased dramatically through the use of research and demonstration results for selecting high yield varieties, insect and disease control and weed control. One county reports producers increased yields 5-10 bushels per acre by selecting varieties that were identified as superior varieties. Producers that selected one of the top varieties

over one of the lower producing varieties could realize $12.50 to $25.00 more income per acre (5-10 bu./a @ $2.50/bu.)

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Disease Control In Burley Tobacco Production

Description:
Several Extension on-farm demonstrations were conducted to show burley producers the benefits of using University recommendations to reduce losses from these two devastating diseases. Also, information was supplied to producers during county field days and county meetings.

Impact:
The use of techniques and information from Extension programs concerning preventative control of these diseases has helped Tennessee producers reduce losses. During 2000, Tennessee producers reduced losses by an estimated 4% by utilizing University recommendations. By following University recommendations producers can help reduce spread of dreaded diseases from field to field and from farm to farm. Also, these management practices may reduce fungicide usage and reduce initial cost of control.

Funding Source:
Smith-Lever and State
****

Title:
Corn Disease Control Program

Description:
Gray leaf spot (GLS) is becoming a real threat to corn production especially in no-till situations. At present there are no completely resistant GLS varieties. Some high yielding varieties show losses of 20-40 bushels/acre in some years.

Description:
Research and demonstrations have shown increases up to 40 bushels/acre. A new very effective fungicide was tested and given EPA clearance in 2000.

Impact:

Many producers are now able to spray their GLS susceptible varieties with a fungicide thereby increasing yields by at least 10-20 bushels per acre.

Funding Sources:
Hatch, Smith-Lever, State and chemical company grants.

Scope:
Integrated Research and Extension
****

Title:
Wheat Disease Control Program

Description:
Tennessee wheat producers lose 10 percent of their crop annually to diseases. Research and demonstrations have shown a 10 bushels/acre increase when foliar fungicides are used along with other cultural practices. Producers were encouraged to use these practices.

Impact:
About 75-80 percent of producers now use resistant varieties and/or foliar fungicides. This has increased yields by approximately 10 bushels per acre for those using these practices, giving an increase of $12 million annually.

Funding Source:
Hatch, Smith-Lever, State and chemical company grants.

Scope:
Integrated Research and Extension
****

Title:
Soybean Disease Control Program

Description:
Soybean diseases reduced Tennessee yields statewide by 26.8 percent in 1989 to a low of 5.0 in 1995. A disease testing program designed to evaluate 150-200 varieties each year for Stem Canker, SDS, Frogeye leaf spot and the Soybean Cyst Nematode was conducted along with educational programs.

Impact:
Producers may now choose the most disease and nematode resistant soybean varieties possible. This has saved about $25.00/acre or about $25 million statewide each year.

Funding Source:

Smith-Lever, State, Soybean Promotion Board and chemical company grants.

Scope:
Integrated Research and Extension
****

Title:
Cotton Seedling Disease Control Program

Description:
Tennessee cotton producers are losing 8-10 percent of their potential yield to seedling diseases. Research and demonstrations have been conducted to show producers that seedling disease can be controlled.

Impact:
Seedling disease control practices have reduced losses to only about five percent statewide. This amounts to an average increase of $20.00/acre or $12 million savings statewide.

Funding Source:
Smith-Lever, State and grants from Cotton Incorporated and chemical companies.
****

Title:
Providing Information on how to Design and Operate a Frost Protection System to Protect Strawberries Grown in Tennessee

Description:
With many producers switching to strawberries to replace lost tobacco income, there is a need to educate these producers on the proper design and operation of frost protection systems. During the fall and winter of 1999-2000, three inservices were conducted for the county Extension faculty. These sessions included information about how over-head irrigation provides frost protection, how to design an effective frost protection system, and how to decide when to initiated the frost protection process. Additionally, a frost protection seminar was conducted during the 2000 Tennessee Fruit and Vegetable Association meeting.

Impact:
More than 120 contacts have been made in regard to frost protection training. After a late-season frost, all producers who followed Extension recommendations reported a near 100 percent save of blooms and early-set fruit. Without frost protection, it can be easy to assume that at least fifty-percent of the crop would have been lost. This would represent a potential loss of $14,000 dollars of gross income per acre.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Site Specific Agriculture in Tennessee

Description:
The use of Global Position System (GPS), various sensors on machinery, and georeferenced field data from a variety of sources is providing agricultural producers and natural resources managers opportunities to determine the productivity and profitability of areas with specificity that was previously not possible. Farmers and fertilizer dealers are keenly interested in the impacts of site specific agriculture, however, the rate of adoption has been slowed by low commodity prices.

The University of Tennessee Agricultural Extension Service and Agricultural Experiment Station have conducted a variety of field studies. An example includes a demonstration project funded by the Southern Region Sustainable Agriculture Research and Education Program (SARE) in Giles County, TN. This project is examining the economics of several soil sampling and fertilization strategies in South Central Tennessee. Results of these projects have been presented findings at field days, group meetings and inservice training for Extension agents. This includes several on-farm workshops to demonstrate the technologies to educators and producers.

Impact:
There have been several cost-benefit studies focusing on the agronomic impacts of site-specific agricultural management practices. In theory, the greater the variability in a field the more likely it is that variable rate fertilization and other practices will result in increased profits. However, preliminary analysis of harvest data from the Giles County project does not support that hypothesis. However, data provided by the yield monitor documented the losses from a partial crop failure of one corn variety, and helped the producer secure a settlement with the seed company valued in excess of $20,000.

Funding Source:
Hatch, Smith-Lever and State

Scope:
State Specific
****

GOAL 2: A safe and secure food and fiber system.

Overview

Major program/research areas included under Goal 2 of the Tennessee Agricultural Research and Extension System Plan of Work included: food safety and food quality/security. The following describes the projects and programs conducted by the UT Agricultural Experiment Station, the UT Agricultural Extension Service and the TSU Cooperative Extension Program in addressing these areas. More specific information related what was done and what impacts were achieved in each area is included under the Key Theme section.

Food Safety:

An Experiment Station and Agricultural Extension Service program has been selected as one of the University of Tennessee's's centers of excellence for additional funding. A group of approximately 40 University research and extension faculty, national laboratory scientists and researchers from the private sector have consolidated into a focused team to address issues of food safety. Early focus has been upon post-harvest food safety and microbial contaminants which may enter the food supply. Early results have produced simple procedures to enhance the quality of milk entering the marketing stream, increasing potential returns to milk producers and improving the quality of milk to consumers. Increased funding for the Food Safety Center will broaden its focus and will center its efforts on microbiology. This long term effort is exceeding expectations.

In FY 2000, the Extension education program, "Safe Food For Families," reached 91,235 adults and youth. More than 54,000 of these individuals were food-stamp eligible and other limited resource audiences in the Tennessee Consumer and Nutrition Education Program (TNCEP) and Expanded Food and Nutrition Education Program (EFNEP). Thirty-seven thousand individuals were reached through Extension Family and Community Education (FCE), 4-H, childcare provider training, public school teacher inservices, food service provider training and home food preservation training. Thousands of Tennesseans received food safety information through radio, newspapers, television, health fairs, videos, computer programs, publications, newsletters and the "Safe Food for Families" web site. Of the 91,235 adults and youth who received food safety education, 71,342 planned to adopt or adopted one or more food safety practices. If 856 to 1,498 of the 71,342 individuals (based on a national percentage of 1.2 to 2.1 percent of individuals who contract foodborne disease annually) who planned to adopt or adopted one food safety practice did not contract a foodborne illness, the potential savings for Tennessee would be $171,200 to $9,262,134 for FY2000.

One hundred and fifty one (151) meat and poultry plant employees, representing 60 companies, were trained through six Extension-conducted workshops in the principles and mechanics of writing and implementing a HACCP plan for meat and poultry plants. A four-day Better Process Control School was also conducted covering low acid, acidified and aseptically processed foods. Better Process Control Schools focusing on aseptic processing were conducted for a large food

manufacturer in the State. Programs on food microbiology, container defects, ozone as a sanitizer and hazardous food identification were offered to Tennessee Department of Agriculture Inspectors. All of the plants that participated in the HACCP training have developed plans which meet USDA requirements as specified by the 1996 law. All plants have improved sanitation and processing standards that have not only made their products safer but of higher overall quality. Seventeen businesses represented by 26 persons participated in a Better Process Control School which allowed them to comply with CFR Title 21, Part 113 and 114. One hundred eleven (111) employees of an aseptic food processor completed a Better Process Control School, giving them basic training to better perform their jobs. Up to 40 Tennessee Department of Agriculture Inspectors received up-to-date education on subjects that will assist them to interact with food processors and improve food safety.

The "University of Tennessee Food Safety Certification Course" and related courses were offered in 2000. Over 30 county Extension faculty were educated in microbiological food safety and related subjects. The three Food Science and Technology Specialists and a Specialist in Family and Consumer Sciences have also trained 2,500 food service workers from restaurants, schools, hospitals and elderly care centers in food safety. Over 55,000 consumers have been trained in food safety statewide through these programs. An Internet-based course was offered to high school family and consumer science teachers that often teach students that work in the food service industry. Four hundred and forty three Tennessee Department of Correction and Mental Health food service workers were trained in principles of "Serv-Safe." A course on HACCP for food service managers and county faculty was also conducted. Of those participants responding, 91% changed at least one of their behaviors as it relates to improved hand washing, cooking to safe temperatures, keeping raw meats from contacting ready-to-eat foods, proper refrigeration or preserving food safely. Approximately 80 high school teachers completed an Internet-based food safety course and doubled their food safety knowledge. These teachers deliver food safety information to approximately 16,000 students per year, many of whom work in the food service industry. Ninety-nine percent of the state's Corrections and Mental Health food service workers were certified in "Serv-Safe." Twenty seven food service managers and county faculty were trained in microbiological food safety, food handling, sanitation and HACCP design and implementation.

Food Quality/Security:

Research conducted at the Tennessee Agricultural Experiment Station demonstrated that mastitis in pregnant dairy heifers occurred frequently near calving and that many of these infections persisted into early lactation and throughout lactation. Procedures for controlling mastitis in heifers based on prepartum antibiotic therapy were subsequently developed and evaluated. This resulted in a simple, effective, economical technique for controlling mastitis in heifers. Prepartum antibiotic-treated heifers produced approximately 1,000 pounds more milk per 0lactation than untreated heifers. With a milk cost of $15.00/one hundred pounds of milk, the procedure results in a return of $138 to $143 over cost, or a return of about $12 to $20 for each $1 spent. Results of this research on strategies for the prevention and control of mastitis in heifers via scientific and popular press publications, and via presentations to different clientele

groups at state, regional, national and international conferences. Results of this research have already impacted dairy producers that have adopted this new technology by increasing heifer productivity, efficiency of milk production, and production of a better quality more wholesome milk.

Nutrition education classes taught by the Agricultural Extension Service help participants gain the knowledge and skills to secure an adequate diet in socially acceptable ways. Tennessee Extension clientele are also taught the skills needed to use food resources more wisely which enables them to make their limited resources last longer. In addition, county and state faculty collaborate with other agencies which provide services to the clientele at greatest risk for food insecurity. As a result of participating in Extension nutrition classes, fifty-seven percent of the participants surveyed in the Tennessee Nutrition and Consumer Education Program (TNCEP) (n=3998) reported they plan to use emergency food services less often and fifty-seven percent surveyed (5,486) reported they plan to reduce the frequency of running out of food before the end of the month. Eighty-four percent of the adult participants (6495) in the EFNEP program improved practices in food resource management which included running out of food less frequently.

Allocations for Goal 2 Projects and Activities:

UT 1862 Research:
- Hatch - $149,297
- Multistate - $33,732
- Animal Health - $1,507
- McIntire-Stennis - $20,023
- State Outlays - $864,511

UT 1862 Extension:
- Smith-Lever b and c - $478,344
- State and County Allocations - $1,374,574

FTE's for Goal 2:

UT 1862 Research - 3.6

UT 1862 Extension - 12.5

****

KEY THEME - FOOD SAFETY/HACCP/FOOD HANDLING

Title:
Food Safety Education for Families

Description:
The Extension education program, "Safe Food For Families," reached 91,235 adults and youth in FY2000. More than 54,000 of these individuals were food-stamp eligible and other limited resource audiences in the Tennessee Consumer and Nutrition Education Program (TNCEP) and Expanded Food and Nutrition Education Program (EFNEP). Thirty-seven thousand individuals were reached through Extension Family and Community Education (FCE), 4-H, childcare provider training, public school teacher inservices, food service provider training and home food preservation training. Thousands of Tennesseans received food safety information through radio, newspapers, television, health fairs, videos, computer programs, publications, newsletters and the "Safe Food for Families" web site.

Impact:
Of the 91,235 adults and youth who received food safety education, 71,342 planned to adopt or adopted one or more food safety practices. More than 41,000 washed their hands before and after handling food, 14,972 cleaned surfaces and utensils that came in contact with food, 8,814 purchased safe food, 17,264 cooked food to safe temperatures, 27,638 refrigerated perishable foods within two hours, 3,475 thawed frozen foods using recommended practices and 16,491 preserved food safely. If 856 to 1,498 of the 71,342 individuals (based on a national percentage of 1.2 to 2.1 percent of individuals who contract foodborne disease annually) who planned to adopt or adopted one food safety practice did not contract a foodborne illness, the potential savings for Tennessee would be $171,200 to $9,262,134 for FY2000.

Funding Source:
Smith-Lever, State, EFNEP (CSREES Smith-Lever 3(d) funds)

Scope:
State Specific
****

Title:
Food Safety Training for Tennessee Food Processors

Description:
One hundred and fifty one (151) meat and poultry plant employees, representing 60 companies, were trained through Extension conducted programs in the principles and mechanics of writing and implementing a HACCP plan for meat and poultry plants. The training was conducted through six workshops across the State to minimize inconvenience and expense to small and very small plants. A four-day Better Process Control School was conducted covering low acid, acidified and aseptically processed foods. Better Process Control Schools focusing on aseptic processing were conducted for a large food manufacturer in the State. Programs on food microbiology, container defects, ozone as a sanitizer and hazardous food identification were offered to Tennessee Department of Agriculture Inspectors.

Impact:

All of the plants that participated in the HACCP training have developed plans which meet USDA requirements as specified by the 1996 law. All plants have improved sanitation and processing standards that have not only made their products safer but of higher overall quality. Seventeen businesses represented by 26 persons participated in a Better Process Control School which allowed them to comply with CFR Title 21, Part 113 and 114. It also allowed entrepreneurs to continue or enter into a complex segment of the food marketplace in which they do not normally play a role. One hundred eleven (111) employees of an aseptic food processor completed a Better Process Control School, giving them basic training to better perform their jobs. Up to 40 Tennessee Department of Agriculture Inspectors received up-to-date education on subjects that will assist them to interact with food processors and improve food safety.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Food Safety and Sanitation for the Food Service Worker

Description:
Food service workers continue to be trained in the area of food safety. The "University of Tennessee Food Safety Certification Course" and related courses were offered in 2000. Over 30 county Extension faculty were educated in microbiological food safety and related subjects. The three Food Science and Technology Specialists and a Specialist in Family and Consumer Sciences have also trained 2,500 food service workers from restaurants, schools, hospitals and elderly care centers in food safety. Over 55,000 consumers have been trained in food safety statewide through these programs. An Internet-based course was offered to high school family and consumer science teachers that often teach students that work in the food service industry. Four hundred and forty three Tennessee Department of Correction and Mental Health food service workers were trained in principles of "Serv-Safe." A course on HACCP for food service managers and county faculty was conducted. The course taught basic information on microbiological food safety, food handling, sanitation and HACCP design and implementation.

Impact:
Based upon survey responses, approximately 55,000 individuals were trained by county Extension faculty.

Of those responding, 91% changed at least one of their behaviors as it relates to improved hand washing, cooking to safe temperatures, keeping raw meats from contacting ready-to-eat foods, proper refrigeration or preserving food safely.

Approximately 80 high school teachers completed an Internet-based food safety course and doubled their food safety knowledge. These teachers deliver food safety information to approximately 16,000 students per year, many of whom work in the food service industry.

Ninety-nine percent of the state's Corrections and Mental Health food service workers were certified in "Serv-Safe."

Twenty seven food service managers and county faculty were trained in microbiological food safety, food handling, sanitation and HACCP design and implementation. For the food service managers, this should improve the safety of their operations.

County faculty will now be able to offer HACCP-based food safety training for food service workers in their county.

Funding Source::
Smith-Lever, State and CSREES-USDA Grant funds

Scope:
State Specific
****

KEY THEME - FOOD QUALITY

Title:
Development and evaluation of strategies for controlling mastitis in heifers

Description:
Research conducted at the Tennessee Agricultural Experiment Station demonstrated that mastitis in pregnant dairy heifers occurred frequently near calving and that many of these infections persisted into early lactation and throughout lactation. Procedures for controlling mastitis in heifers based on prepartum antibiotic therapy were subsequently developed and evaluated. This resulted in a simple, effective, economical technique for controlling mastitis in heifers. Prepartum antibiotic therapy significantly reduced mastitis in heifers during early lactation and throughout lactation, increased milk production, and enhanced milk quality. Antibiotics cost about $5.00, and labor costs are about $2.00 (assuming 10 to 15 minutes to perform the treatment). If an on-farm test is used to detect antibiotic residues if a heifer calves earlier than expected, an additional cost of $3.00 to $5.00 will be incurred. Thus, the maximum cost of treatment should not exceed $12.00 and for most animals the cost will be $7.00 or less. Prepartum antibiotic-treated heifers produced approximately 1,000 pounds more milk per lactation than untreated heifers. With a milk cost of $15.00/one hundred pounds of milk, the procedure results in a return of $138 to $143 over cost, or a return of about $12 to $20 for each $1 spent.

Impact:

Collectively, results of studies on heifer mastitis at the Tennessee Agricultural Experiment Station demonstrate that prepartum antibiotic therapy is a cost-effective procedure for eliminating many intramammary infections in heifers during late gestation, a time when heifers are highly susceptible to new infection. Furthermore, prepartum antibiotic therapy reduced the prevalence of mastitis in heifers during early lactation and throughout lactation, increased milk production, and enhanced milk quality. Dr. Oliver has communicated results of his research on strategies for the prevention and control of mastitis in heifers via scientific and popular press publications, and via presentations to different clientele groups at state, regional, national and international conferences. Results of this research have already impacted dairy producers that have adopted this new technology by increasing heifer productivity, efficiency of milk production, and production of a better quality more wholesome milk. The procedure is simply, cost-effective and would fit easily into most, if not all, dairy management schemes. Additional studies are ongoing to determine the efficacy of a wider spectrum of antimicrobials.

Funding Source:
Hatch and State

Scope:
Integrated Research and Extension
****

KEY THEME - FOOD SECURITY

Title:
Extension Food Security Programming

Description:
The aim of the nutrition education classes taught by the Agricultural Extension Service was to help participants gain the knowledge and skills to secure an adequate diet in socially acceptable ways. Tennessee Extension clientele are taught the skills needed to use food resources more wisely which enables them to make their limited resources last longer. In addition, county and state faculty collaborate with other agencies which provide services to the clientele at greatest risk for food insecurity. This collaboration helps all who work with this clientele to make referrals to agencies which help with health care and other social service needs to reduce the drain of the limited food resources.

Impact:
As a result of participating in the nutrition classes conducted by the University of Tennessee Agricultural Extension Service Family and Consumer Science faculty, fifty-seven percent of the participants surveyed in the Tennessee Nutrition and Consumer Education Program (TNCEP) (n=3998) reported they plan to use emergency food services less often and fifty-seven percent surveyed (5,486) reported they plan to reduce the frequency of running out of food before the end of the month. Eighty-four percent of the adult participants (6495) in the EFNEP program

improved practices in food resource management which included running out of food less frequently.

Funding Source:
Smith-Lever, State (including Tennessee Department of Human Resources Community Block Grant and EFNEP (Smith-Lever 3d)

Scope:
State Specific
****

GOAL 3: A healthy, well-nourished population.

Overview

Major program/research areas included under Goal 3 of the Tennessee Agricultural Research and Extension System Plan of Work included: nutrition and diet issues and healthy lifestyles and health care issues. The following describes the projects and programs conducted by the UT Agricultural Experiment Station, the UT Agricultural Extension Service and the TSU Cooperative Extension Program in addressing these areas. More specific information related what was done and what impacts were achieved in each area is included under the Key Theme section.

Nutrition and Diet Issues:

Extension's Tennessee Nutrition and Consumer Education Program (TNCEP) helped individuals gain the knowledge and skills needed to select a healthy diet. There were 228,709 teaching contacts, including adult and youth. In addition to program contacts attending classes, TNCEP delivered nutrition messages to 330,073 participants through educational handouts, single session programs, and exhibits. Others were reached through newspaper articles, newsletters, radio programs, video/computer programs, grocery bag stuffers, and television.

Seventy-eight percent of TNCEP participants reported they plan to adopt one or more dietary practices. Seventy-eight percent of participants in the Base nutrition program reported actually adopting one or more dietary practices. Eighty-eight percent of program participants in EFNEP showed improvement in one or more nutrition practices (planned meals, makes healthy choices, children eats breakfast more often). Sixty-eight percent of TNCEP participants also reported they plan to share what they learn with others. Based on research conducted at the University of Virginia, there is a considerable savings on health care dollars when individuals adopt healthy eating practices. They found that 10 dollars in health care costs are saved for every dollar spent on nutrition education.

The University of Tennessee Agricultural Extension Service Family and Consumer Sciences Program developed and implemented a program to teach basic cooking classes to program participants. Basic cooking skills were taught to 5,207 participants in the base nutrition program and approximately 26,303 participants in the TNCEP program. Eighty-nine percent of the participants surveyed in TNCEP reported they plan to try new foods as a result of what they learned; 82 percent said they plan to prepare a greater variety of foods and 83 percent said they plan to prepare foods from scratch more often.

A supermarket shopping program was implemented through the Extension Family and Consumer Sciences Program, teaching shopping skills to 7,063 participates in the base Extension nutrition program; 8,242 in the Tennessee Nutrition and Consumer Education Program (TNCEP) and 6,495 in EFNEP. Eighty-four percent of the participants in EFNEP showed improvement in one or more food resource management practices. Eighty-four percent of TNCEP participants

reported they intend to plan meals before shopping, 72 percent reported planning to shop from a list, 77 percent reported they plan to develop a family budget to assure adequate expenditures for food, and 73 percent plan to compare food items to get the best buy.

A total of 5,828 youth participated in 4-H meat and dairy foods projects in 2000. Four hundred and ninety 4-H youth participated in meat judging, meat cookery and dairy products judging training sessions and competitions. Thirty seventh-grade meat and dairy foods 4-H youth participated in 4-H Academic Conference, an activity designed to familiarize the students with opportunities at a university. The 4-H youth who participated in the meat science and dairy foods projects gained knowledge about food and life skills by completing the project manual assignments and participating in the activities.

Healthy Lifestyles and Health Care Issues:

An Experiment Station program to meet the needs of a healthy, well-nourished population has centered upon the interaction between nutrition and heart disease, and its correlate, obesity. This area of research is, by its nature directed toward the cellular level and the metabolism which occurs. The research has generally identified the interaction between genetics and the effects of nutrition on health. The research is long term in nature and impacts will be derived only with long term evaluation of hypotheses.

The UT Agricultural Extension Service (UTAES) reached 17,781 women in 69 counties, 7,327 men in 33 counties through wellness programs addressing self-care skills and personal action planning in four areas: health conditions unique to women, healthy lifestyles, disease prevention and management, and self-examinations and preventive screenings. Seven thousand women who were food stamp recipients or potential food stamp recipients participated in these programs. UTAES also participated in 74 health fairs, reaching 21,611 Tennesseans. As a result of these programs, women and men who were surveyed reported that they had: increased their knowledge about health, improved their attitudes about health, planned to adopt recommended health practices, and/or had adopted recommended health practices. Similar wellness programs were conducted for older adults.

Also as a result of these programs, 5,241 women who were food stamp recipients or potential food stamp recipients reported they planned to adopt recommended health practices.

UT Extension also provided health education to 77,789 youth in 48 counties in partnership with 6,018 schools and 2,612 teachers. Of the youth reached, 14,023 were minority youth and 10,730 were children from families participating in the Food Stamp Program or who were potential food stamp recipients. Through 22 youth health fairs, Extension also reached 4,800 youth. Youth participants reports that they: increased their knowledge about health, improved their attitudes about health compromising behaviors, planned to adopt recommended health enhancing behaviors, and had adopted recommended health enhancing behaviors.
Staff from 95 University of Tennessee Agricultural Extension Service (UTAES) county Extension offices used a coalition structure to provide a coordinated approach to solving the

health problems in their respective communities. Sixty-one county health coalitions have provided county leadership in solving health problems of adults and their families through educational programs. Through this method of community mobilization, 10,258 adult Tennesseans received health education and 280 agencies and groups formally worked together with UTAES to improve access to health education programs and health care services.

Eighty county Tennessee Nutrition and Consumer Education Program (TNCEP) coalitions have also provided leadership in the implementation and evaluation of programs designed to provide education in nutrition, food safety and health to food stamp recipients and their families. TNCEP coalition efforts had more than 127,389 contacts with food stamp recipients and eligible food stamp recipients.

A need was identified for health education regarding the promotion of the vaccine preventable influenza disease and a need to make the influenza vaccine more available to adults and high risk audiences in rural Tennessee. The University of Tennessee Center for Community-based Health Initiatives (Center), a partnership between the University of Tennessee Agricultural Extension Service (UTAES) and the University of Tennessee College of Pharmacy, trained county teams of community pharmacists and Extension educators to deliver an Influenza Immunization Education and Service Program. Eleven thousand influenza vaccines were administered over a three-month period. Pharmacists had a significant increase in the number of vaccines administered as compared to the previous year. Pretest-posttest analysis of 500 participants surveyed revealed statistically significant improvements in knowledge, attitudes, and behaviors. County teams reported partnerships as an effective and efficient way to promote and to increase influenza immunizations in their counties.

The TSU family life extension specialist, in cooperation with the Meharry Medical College, conducted a study of obesity in young children, their eating habits and its effect on their grades in the school. Along with data collection, appropriate information on foods and nutrition was provided to the families.

Allocations for Goal 3 Projects and Activities:

UT 1862 Research:
- Hatch - $186,621
- Multistate - $42,165
- Animal Health - $1,884
- McIntire-Stennis - $25,029
- State Outlays - $1,080,639

UT 1862 Extension:
- Smith-Lever b and c - $924,258
- Smith-Lever d (EFNEP) - $1,910,104
- State and County Allocations - $3,390,617

FTE's for Goal 3:

UT 1862 Research - 4.5

UT 1862 Extension - 161.0 (including 65 paraprofessional FTE's)

****

KEY THEME - HUMAN NUTRITION

Title:
Chronic Disease Risk Reduction through Adoption of Recommended Dietary Practices

Description:
A nutrition education program was designed and implemented in Extension's Tennessee Nutrition and Consumer Education Program (TNCEP) to help individuals gain the knowledge and skills needed to select a healthy diet. The program has been implemented in almost all 95 counties in Tennessee. There were 228,709 teaching instances with program participants including adult and youth. Participation within specific Extension Family and Consumer Sciences program areas includes:

> Tennessee Nutrition and Consumer Education Program (TNCEP) - 127,389 contacts including youth and adults.
>
> Expanded Food and Nutrition Education Program (EFNEP) - 31,036 individual program participants (6,495 adults and 24,541 youth). Each of these participants received an average of approximately 8 to 10 teaching instances.
>
> Nutrition for general audiences (Base Nutrition Program)- 70, 284 contacts (42,430 adults and 27,584 youth).

In addition to program contacts attending classes, TNCEP delivered nutrition messages to 330,073 participants through educational handouts, single session programs, and exhibits. Numerous others were reached through newspaper articles, newsletters, radio programs, video/computer programs, grocery bag stuffers, and television.

Audiences taught included: school age children, public housing residents, Families First Participants, child care providers serving low-income children, Family and Community Education participants, commodity food distribution recipients, 4-H youth and WIC participants.

Impact:
Seventy-eight percent of those surveyed (n= 93,592) in the TNCEP Program reported they plan to adopt one or more dietary practices. Seventy-eight percent of participants in the Base nutrition program reported adopting one or more dietary practices. These practices included: Eating more

whole grains, fruits and vegetables, decreasing intake of fat, sodium or sugar. Eighty-eight percent (n=3539) of program participants in EFNEP showed improvement in one or more of nutrition practices (planned meals, makes healthy choices, children eats breakfast more often).

Sixty-eight percent (29,341) of the TNCEP participants also reported they plan to share what they learn with others thus achieving a multiplying effect of program benefits to target clientele.

Based on research conducted at the University of Virginia, there is a considerable savings on health care dollars when individuals adopt healthy eating practices. They found that 10 dollars in health care costs are saved for every dollar spent on nutrition education.

Funding Source:
Smith-Lever, State (including Department of Human Resources Community Block Grant) and EFNEP (Smith-Lever 3d)

Scope:
State Specific
****

Title:
Extension Cooking Classes

Description:
Basic cooking skills are essential for limited-resource families to manage food budgets and secure a healthful diet. The University of Tennessee Agricultural Extension Service Family and Consumer Sciences Program developed and implemented a program to teach basic cooking classes to program participants. This program has been implemented in the Tennessee Consumer and Nutrition Education Program (TNCEP) and the base Extension nutrition education program. 5,207 participants in the base nutrition program and approximately 26,303 participants in the TNCEP program were taught basic cooking skills.

Impact:
Eighty-nine percent of the participants surveyed (n=9800) in TNCEP reported they plan to try new foods as a result of what they learned; 82 percent said they plan prepare a greater variety of foods and 83 percent said they plan to prepared foods from scratch more often. .

Funding Source:
Smith-Lever, State (including Tennessee Department of Human Resources Community Block Grant)

Scope:
State Specific
****

Title:
Extension Food Shopping Education Programs

Description:
Food shopping behaviors are an important link to measures of diet quality and ultimately health status measures. Failure to use food resources wisely will often result in inadequate diets which lead to poor health.

A supermarket shopping program was implemented in the University of Tennessee Agricultural Extension Service's Family and Consumer Sciences Program. In total, 7,063 participates in the base Extension nutrition program; 8,242 participants in the Tennessee Nutrition and Consumer Education Program (TNCEP) and all adult participants (6,495) in the Expanded Food and Nutrition Education Program (EFNEP) were taught shopping skills.

Impact:
Eighty-four percent of the participants in the EFNEP program showed improvement in one or more food resource management practices, including planning meals, comparing prices, and using a grocery list to shop for food.

Eighty-four percent of the TNCEP participants surveyed (5,124) reported they intend to plan meals before shopping, 72 percent (5,240) reported plans to shop from a list, 77 percent (1,039) reported they plan to develop a family budget to assure adequate expenditures for food, and 73 percent (5,124) plan to compare food items to get the best buy.

Consumers who use good food shopping practices are more likely to be able to secure a healthy diet and reduce dependency on society for support.

Funding Source:
Smith-Lever, State (including Tennessee Department of Human Resources Community Block Grant) and EFNEP (Smith-Lever 3d)

Scope:
State Specific
****

Title:
Extension 4-H Food Science Education

Description:
The 4-H food science education programs provide factual information about meat and dairy foods and facilitates experiences in competition and working together to develop leadership and citizenship skills through judging contests. A total of 5,828 youth participated in meat and dairy foods projects in 2000. 4-H youth completed project manuals designed for grades 5-12. The project manuals provide factual information about meat and dairy foods that enables the 4-H

youth to make informed decisions about their diet. Approximately thirty students who maintained project record books participated in 4-H Roundup, an activity in which the record books are evaluated and the 4-H youth judged on their knowledge of the project. Judging and cookery activities allowed the 4-H youth to learn both facts about meat and dairy foods and develop leadership and citizenship skills. Four hundred and ninety 4-H youth participated in meat judging, meat cookery and dairy products judging training sessions and competitions. Competitions were conducted at the district, State, and national level for meat judging and at the district and State level for dairy products judging and outdoor meat cookery. Approximately thirty seventh grade meat and dairy foods 4-H youth participated in 4-H Academic Conference, an activity designed to familiarize the students with opportunities at a university.

Impact:
The 4-H youth that participated in the meat science and dairy foods projects gained knowledge about food and life skills by completing the project manual assignments and participating in the activities. Approximately eight percent of the 4-H youth developed additional skills by competing in judging and cookery competitions. Academic conference provided 4-H youth an opportunity to discover what goes on in a major research university.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

KEY THEME - HUMAN HEALTH

Title:
Extension Women's Wellness Program

Description:
The University of Tennessee Agricultural Extension Service (UTAES) reached 17,781 women through wellness programs in 69 counties addressing self-care skills and personal action planning in four areas: health conditions unique to women, healthy lifestyles, disease prevention and management, and self-examinations and preventive screenings. Seven thousand women who were food stamp recipients or potential food stamp recipients participated in these programs. UTAES in 29 counties participated in 74 health fairs, reaching 21,611 Tennesseans.

Impact:
As a result of these programs, women who were surveyed reported the following:
a. 7,850 increased their knowledge about health,
b. 6,642 improved their attitudes about health,
c. 6,549 planned to adopt recommended health practices by reducing health risk behaviors,
d. 6,160 adopted recommended health practices by reducing health risk behaviors.

By empowering women with the knowledge, positive attitudes and self-care skills, Tennessee women can take personal responsibility for their health, prevent injuries and many debilitating diseases common to women, and reduce their personal health care costs associated with these diseases.

As a result of these programs, 5,241 women who were food stamp recipients or potential food stamp recipients reported they planned to adopt recommended health practices addressing physical activity, prevention and management of diet-related diseases, weight management, food and drug interactions and stress management. Through UTAES health programming, low income women are taking personal responsibility for their health, preventing injuries and many debilitating diseases common to low income women, and reducing personal health care costs.

Funding Source:
Smith-Lever, State (including Tennessee Department of Human Services Block Grant) and EFNEP (Smith-Lever 3d)

Scope:
State Specific
****

Title:
Extension Men's Wellness Program

Description:
The University of Tennessee Agricultural Extension Service (UTAES) reached 7,327 men in 33 counties through health programs addressing self-care skills, healthy lifestyles**,** chronic disease prevention and management**,** and preventive screenings. Two thousand minority men participated in these programs.

Impact:
As a result of these programs, those men surveyed reported the following:
a. 6,568 increased their knowledge about health,
b. 6,514 improved their attitudes about health,
c. 6,516 planned to adopt recommended health practices by reducing health risk behaviors
d. 6,516 adopted recommended health practices by reducing health risk behaviors.

Through these health education programs, men are equipped to pay more attention to their health by developing self-care skills, engaging in healthy lifestyles, and receiving medical screenings and treatments, leading to more healthy and productive lives during the transitional stages of manhood and reducing personal health care costs.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Extension Youth Wellness Program

Description:
Recognizing the important role schools play in the development of healthy lifestyles, the University of Tennessee Agricultural Extension Service (UTAES) provided health education to 77,789 youth in 48 counties in partnership with 6,018 schools and 2,612 teachers. Of the 80,753 youth reached, 14,023 were minority youth and 10,730 were children from families participating in the Food Stamp Program or who were potential food stamp recipients. Through 22 youth health fairs, UTAES in 15 counties reached 4,800 youth. Additionally, UTAES in 30 counties participated on 54 county health coalitions, targeting high risk health behaviors among youth in their communities.

Impact:
Through program surveys, youth reported the following:

a. 24,326 increased their knowledge about health,
b. 17,140 improved their attitudes about health compromising behaviors,
c. 17,210 planned to adopt recommended health enhancing behaviors, and
d. 5,329 adopted recommended health enhancing behaviors.

Through UTAES health education programs, youth are empowered with the knowledge, attitudes and skills necessary to engage in health enhancing behaviors.

Funding Source:
Smith-Lever, State (including Tennessee Department of Human Services Block Grant and EFNEP (Smith-Lever 3d)

Scope:
State Specific
****

Title:
Extension Later Life Health Promotion Programming

Description:
The University of Tennessee Agricultural Extension Service (UTAES) health programs empower seniors to maintain their health through healthy lifestyle education such as exercise, diet, stress control and medications. Programs also address working wisely with the health care system, chronic disease management, self-examinations, vaccinations and preventive screenings.

In 40 counties, 22,400 older adults were reached through UTAES health programs. Two thousand of these seniors were food stamp recipients or potential food stamp recipients. Three thousand minority seniors participated in these UTAES health programs.

Impact:
As a result of these programs, seniors reported the following:
a. 13,469 increased their knowledge about health,
b. 12,096 improved their attitudes about health practices,
c. 12,235 planned to adopt health practices by reducing health risk behaviors
d. 11,054 actually adopted recommended health practices.

Senior Tennesseans participating in Extension health education programs are now equipped with the necessary knowledge, attitudes and self-care skills to maintain their health and independence.

As a result of these programs, 2,000 seniors who were food stamp recipients or potential food stamp recipients reported they planned to adopt recommended health practices addressing physical activity, self-care skills for the prevention and management of diet-related diseases, weight control, food and drug interactions, and stress management. UTAES is assisting low-income seniors in developing the skills needed to maintain their health and independence.

Funding Source:
Smith-Lever and State (including Tennessee Department of Human Services Block Grant

Scope:
State Specific
****

Title:
Promoting Access to Quality Health Care

Description:
Health and nutrition coalitions are useful for accomplishing a broad range of health goals that reach beyond the capacity of any individual member organization. These health coalitions are cost-effective because the cost of achieving overall results is less than if the lead agency attempted to accomplish these same objectives on its own. Staff from 95 University of Tennessee Agricultural Extension Service (UTAES) county Extension offices used a coalition structure to provide a coordinated approach to solving the health problems in their respective communities.

Impact:
Sixty-one county health coalitions have provided county leadership in solving health problems of adults and their families through educational programs. Through this method of community mobilization, 10,258 adult Tennesseans received health education and 280 agencies and groups

formally worked together with UTAES to improve access to health education programs and health care services.

Eighty county Tennessee Nutrition and Consumer Education Program (TNCEP) coalitions have provided leadership in the implementation and evaluation of programs designed to provide education in nutrition, food safety and health to food stamp recipients and their families. Working with a variety of organizations who reach food stamp recipients through TNCEP, UTAES made more than 127,389 contacts with food stamp recipients and eligible food stamp recipients.

Funding Source:
Smith-Lever, State (including Tennessee Department of Human Services Block Grant), EFNEP (Smith-Lever 3d) and Local

Scope:
State Specific
****

Title:
Extension Collaborative Influenza Immunization Program

Description:
A need was identified for health education regarding the promotion of the vaccine preventable influenza disease and a need to make the influenza vaccine more available to adults and high risk audiences in rural Tennessee. To meet this need, the University of Tennessee Center for Community-based Health Initiatives (Center), a partnership between the University of Tennessee Agricultural Extension Service (UTAES) and the University of Tennessee College of Pharmacy, trained county teams of community pharmacists and Extension educators to deliver an Influenza Immunization Education and Service Program. Seven rural counties served as pilot sites. By combining service and education, the program increased both access to obtaining the vaccine and the immunization rates in these seven rural Tennessee counties. Educational programs were conducted at senior centers, work sites, hospitals and clinics. The need for the vaccine was promoted through posters, public service announcements, newspaper articles, television programs, publications and exhibits developed by the Center. The influenza vaccine was administered at county fairs, schools, colleges, work sites, sports events, senior centers, pharmacies, nursing homes, senior assisted housing and grocery stores.

Impact:
A random selection of 1,300 post immunization surveys revealed:
- 33.6% reported convenience as the primary reason for utilizing the service through a pharmacist,
- 19% had seen an advertisement or promotional materials
- 29 % had been referred by a friend or relative,
- 17% had never received a flu shot

- 28% had not received a flu shot in the past year,
- 11% reported not having a regular physician.

Eleven thousand influenza vaccines were administered over a three-month period. Pharmacists had a significant increase in the number of vaccines administered as compared to the previous year.

Pretest-posttest analysis of 500 participants surveyed revealed statistically significant improvements in knowledge, attitudes, and behaviors.

County teams reported partnerships as an effective and efficient way to promote and to increase influenza immunizations in their counties.

Funding Source:
Smith-Lever and UT College of Pharmacy Funds

Scope:
State Specific
****

Title:
Obesity in Adolescents

Description:
Through a special needs USDA grant, the TSU family life extension specialist, in cooperation with the Meharry Medical College, conducted a study of obesity in young children, their eating habits and its effect on their grades in the school.

Impact:
Along with data collection, appropriate information on foods and nutrition was provided to the families.

Funding Source:
Smith-Lever and USDA Special Needs Grant

Scope:
State Specific
****

Title:
Mechanisms of agouti-induced obesity

Description:

We studied the effects of a gene, agouti, known to cause obesity in rodents in human fat cell metabolism and investigated the interaction between this gene and nutrients to promote fat accumulation.

Impact:
The obesity gene agouti increases fat accumulation in human and mouse fat cells by increasing intracellular calcium. In the presence of carbohydrates, this gene promotes conversion of carbohydrates into fat. This demonstrates the importance of diet-gene interaction in health and disease.

Funding Source:
Hatch and State

Scope:
State Specific
****

Title:
Retention of low bone mineral density in adult women who had an adolescent pregnancy

Description:
In the current study we are again comparing bone density in the two groups, now ages 22 to 25 years. This study will identify dietary and environmental factors related to enhancement of bone density in the years following an adolescent pregnancy. Possible factors believed to enhance BMD include exercise patterns and dietary intake of calcium and other minerals needed for bone formation; negative factors include repeated pregnancies, sedentary lifestyles, smoking and nutritionally inadequate diets.

Impact:
Obesity is an increasing problem in the United States and other developed countries and may be a special problem following pregnancy. DEXA also provides assessment of body fat. We will specifically investigate the negative relationship between dietary calcium and body fat, which we have reported in young children, and which also has been reported in animal studies at UT by other investigators.

Funding Source:
Hatch and State

Scope:
State Specific
****

GOAL 4: Greater harmony between agriculture and the environment.

Overview

Major program/research areas included under Goal 4 of the Tennessee Agricultural Research and Extension System Plan of Work included: land use, pesticides, water quality, waste management, and forestry and wildlife. The following describes the projects and programs conducted by the UT Agricultural Experiment Station, the UT Agricultural Extension Service and the TSU Cooperative Extension Program in addressing these areas. More specific information related what was done and what impacts were achieved in each area is included under the Key Theme section.

Land Use:

A UT Extension multimedia presentation on factors determining rural land values and agricultural trends in Tennessee was developed and presented during a Tennessee county tax assessors' retreat. Approximately 380 people from the property tax assessors' offices, representing all 95 Tennessee counties, attended the seminar. Participants in the program reported a better understanding of current agricultural property issues and future trends for rural Tennessee.

Pesticides:

Extension pesticide applicator training sessions were held monthly and quarterly in various areas of the state to train private applicators (PA) and commercial applicators (CA) in the proper use of pesticides. Commercial applicators were also prepared to take an exam to demonstrate their proficiency in the safe pesticide use. Seventy-four PAs were trained and certified; 713 CAs were initially trained and certified; 427 schools were conducted to train CAs for their recertification; 433 CAs earned points toward their recertification; 1,300 new Master Gardeners (MG) were initially trained in pesticide safety; 1,000 experienced MGs were updated on the latest pesticide safety practices; 435 PAs and CAs were trained and certified as WPS Workers, Pesticide Handlers and Trainers; and 125 scouts and consultants were trained in pesticide safety.

Extension IPM educational in-field sessions and farm visits were used in West Tennessee to educate producers, scouts and other private enterprise concerning the objectives of the IPM program so that yields could be maintained and/or increased. A revised University of Tennessee cotton plant and pest IPM scouting form was also developed and made available. Three (3) western district scouting schools, 336 western district circular educational letters and 7 news articles were utilized to show producers the benefits of following recommended IPM practices. One (1) cotton insecticide demonstration was used to show cotton producers that UT Extension Service recommendations are effective in controlling cotton insects. Producers on the cotton IPM program receive a weekly comprehensive report regarding these pests and a weekly letter related to pest problems. A spring boll weevil trapping programwas beneficial in predicting overwintered survival rate and provided support for U.T. pin-head square recommendations.

According to the latest cotton producer survey, 86% of cotton producers are using some degree of IPM practices, resulting in pesticide reduction by an average of 31%. This represents a savings of approximately $882,217.58 for Lauderdale County cotton producers alone or $19.72 per acre.

Currently, twenty-nine counties along Tennessee's southern border and more are infested with fire ants. Three biological control agents, a microsporidian and two species of phorid fly, have been released against imported fire ants. Thirteen presentations on fire ant biology and management were made at county meetings or field days to over 1000 people. A regional publication on fire ant management in urban areas was developed jointly with specialists from the southern states. Mass media including newspapers, departmental newsletters, Agricultural and Family and Consumer Sciences News Packets, and television and radio interviews were used to promote fire ant control strategies and research from UT. While these biological control agents are not expected to eliminate imported fire ants, they are expected to reduce populations, control spread and tip the ecological balance in favor of other ant species.

The honey bee is economically important as a pollinator of Tennessee fruits and vegetables valued annually in excess of $118 million. Parasitic mites have caused beekeepers to lose 50% of their colonies. New “safer” treatments were compared for efficacy in three field trials. Data from the studies will be used to support a section 3 registration (in progress) for use of Api Life VAR in the US. These materials are less hazardous to bee products and should be used as tools in an integrated management plan to reduce mite population levels below an economic threshold. These treatments should save Tennessee beekeepers millions of dollars while saving thousands of honey bee colonies.

An IPM in Schools Program was initiated in the spring of 1996 as a joint venture between The UT Agricultural Extension Service and The Tennessee Department of Agriculture, Division of Regulatory Services. This year's school IPM efforts included the following: a demonstration on managing pests in Tellico Plains' schools and presentations for Tennessee environmental educators, pest management professionals with school accounts and the Chattanooga Pest Control Association. At least 263 pest management professionals attending pesticide applicator training in category 7 and 322 Master Gardeners in 8 counties were exposed to the concepts of school IPM. In November, a young student, "known" to have a sensitivity to a certain pesticide, felt ill while at school and officials decided it was in the best interest of the child to keep her home bound. The Extension IPM specialist met with school officials, maintenance staff, the county Extension agent, pest management professionals and employees of Eco-SMART (producer of environmentally-friendly pest control products) to explain how to manage pests in schools using IPM. They agreed to adopt this IPM program, stop spraying pesticides unnecessarily, and the child plans to continue her education in school again in the new year.

263 pest management professionals were trained in IPM through 32 videotaped and interactive TV sessions for pesticide applicator training in category 7. Four formal presentations or workshops that emphasized ant identification and IPM were provided to over 907 pest management professionals. Also, 7 presentations on urban IPM were presented to 563 extension

agents, the public or to pest management professionals. Demonstrations in ant and termite control were conducted to explore new strategies for controlling these pests. Over 179 household, structural, landscape and vegetable pests were identified in the Urban IPM lab or through the UT Agricultural Extension Service Distance Diagnostics Web Site for agents, homeowners and pest management professionals.

Results from before and after training of Master Gardeners in Davidson, Williamson and Cumberland Counties indicated that participants increased their use of IPM practices.

Water Quality:

A soil-bed bioreactor (SBBR) system has been developed and evaluated by Experiment Station researchers for its effectiveness in evaporating and degrading pesticide rinse water. The system has been laboratory tested using soil columns and successfully degraded and evaporated both herbicide and insecticide rinse solutions. A full-scale system has been designed to include a covered rinse pad coupled with a greenhouse to house the SBBR system. Plans are underway to implement the system on one of the UTIA Experiment Stations. When fully implemented with in-field sprayer rinse systems, the system has the potential to dramatically reduce the volume of on farm generated pesticide rinsates. Volume reduction could be as great as 80-90 percent, depending on individual management practices.

Extension Clean Water Priority Team members have focused efforts on developing and delivering educational programs that: increase Tennesseans' understanding of watersheds and water quality issues; increase farmers' understanding of practices to protect and improve water quality; increase families' understanding of ways to protect and improve water quality and the environment in and around their homes; increase understanding of water quality issues among youth, teachers and volunteers who work with youth. Team members were involved in the following educational efforts:

- Writing a handbook of best management practices for agriculture and forestry.
- Creating a Home-A-Syst CD-ROM for middle-school aged youth.
- Planning, conducting and evaluating five agent training programs with a total of 159 participants.
- Introducing the use of the Internet in agent training.
- Analyzing the economic and environmental impacts of the Environmental Quality Incentives Program (EQIP) on three representative Tennessee farms.
- Developing and conducting the aquatics challenge for 4-H Envirothon competitions
- Participating in planning and conducting three field days.
- Writing proposals for extramural grant funding

Over 500 farmers, agency personnel, local officials and interested citizens learned first hand about water quality protection and improvement during the three field days. Over 150 Extension agents are better prepared to assist their clientele protect and improve water resources as a result of participating in training opportunities. Over 600 high school students and 115 teachers/coaches increased their knowledge and understanding of water and other environmental

issues, through participation in the Envirothon program. Almost $120,000 in external funds were obtained to support more effective water quality educational programming.

Cow-calf operations are a major enterprise in Tennessee and adjoining states. These operations can significantly impact water quality. A multi-state field day with the theme "BMPs for beef cattle producers" was planned and conducted. Over 60 individuals from Georgia, North Carolina and Alabama as well as Tennessee participated. Evaluations showed they increased their knowledge of the water quality impacts of beef cattle production, economically feasible alternatives to address these impacts and available technical and financial assistance.

The Tennessee Agricultural Extension Service, working jointly with the Tennessee Department of Agriculture and the Natural Resources Conservation Service, initiated a program to educate producers, Extension agents, Natural Resources Conservation Service personnel and other interested parties on dependable alternative methods for providing livestock water. Field days, county meetings and educational literature were used to transfer information learned from on-farm demonstrations to beef producers, Extension Agents and NRCS county personnel on the environmental benefits associated with limiting or removing cattle access to streams; the costs, installation and performance of alternative watering systems; and economical fencing options. Approximately 10% of 128 beef producers attending these field days fenced their livestock from streams and installed alternative watering systems. USDA NRCS county offices indicate producer interest in this program continues to grow.

Sediment and associated nutrients from eroding cropland are major sources of non-point pollution in Tennessee. Soil erosion control through no-till and residue management was a primary topic of three inservice training sessions for county agents, two special training sessions for farm supply co-op employees, two update sessions for certified crop advisors, four county-based producer meetings, and two experiment station field day presentations. In these sessions 85 agents, 75 certified crop advisors and 395 farmers/agribusiness personnel received update training in this topic. Three news articles and one TV interview were produced for mass media on the topic of soil erosion in Tennessee. One experiment station test and four on farm tests were conducted in the area of no-till. Use of no-till for major Tennessee crops exceeded 50% of acreage for the first time ever. No-till use in cotton reached 300,000 acres, or half of all cotton planted. The additional 300,000 acres of no-till on Tennessee cropland is estimated to reduce soil erosion by three million tons annually and to save at least 7.5 million dollars in off-site damage by sediment.

Waste Management:

A major Experiment and Extension program involves reduction of the environmental impact of confined animal production systems. Attention is focused upon reducing phosphorous and hormonal discharges. Experiment Station and Extension programs have been directed toward assessing the current situation in relation to regulations and potential problems, and educating producers on current technology to address their situation. Research is currently underway on

new methodologies to redress water quality problems. If successful, both producers of animals and consumers of ground and surface water will benefit.

All new or expanding poultry operations in Tennessee are required to obtain a Class II CAFO General Permit at least 30 days prior to feeding chicks in the new facilities. Three Extension publications "Guidelines for Developing and Implementing a Poultry Nutrient Management Plan", "Tennessee Class II CAFO General Permit Requirements for the Poultry Industry" and "Poultry Litter Sampling and Testing" were developed and used in educational programs for poultry farmers. Approximately 600 poultry farmers representing five poultry firms attended meetings to learn more about Tennessee's animal waste and water quality regulations. Sixty-five poultry farmers received assistance in developing a nutrient management plan. With Extension assistance, another 102 poultry farmers voluntarily completed a nutrient management plan for their farm.

Forestry and Wildlife:

Forestry

The Forest Landowner Education Extension Initiative (FLEEI) focuses on educational programs and resource demonstrations for the over 400,000 non-industrial private forest landowners who own over 80 percent or 11 million acres of forest land in Tennessee. The objective is for landowners to improve the profitability of forest ownership, improve management of the forest resource and understand the ecology of forest development and succession (forest biology). The following are sub-parts of the initiative:

- During the past year, the number of active County Forestry Associations has increased from two to eight. During this process, three Extension-led meetings were held in each of the new counties. An educational newsletter was started and four forestry field days were organized. Several seminars on forestry topics were presented. The eight active CFAs currently have 429 members, for an average of 54 members per county, who own an estimated 64,350 acres of forest land. These associations are becoming autonomous, setting their own agendas, and seeking some assistance from the UT Extension Service for programming and communication. Many associations have become quite active, writing articles for their local newspaper, holding forestry poster contests for school children, soliciting speakers for meetings, planning their own field days, collecting dues, writing their legislators and inviting them to speak, etc.

- A state Extension Forest*A*Syst (FAS) committee, which includes representatives from multiple disciplines and agencies, was established to create a FAS manual. Three meetings have occurred, and the second draft of the FAS manual is near completion. The main impact, at this point, has been to create awareness of FAS, to secure support for the program from various agencies, to draw upon the knowledge of professionals from these agencies, and to formalize a procedure for delivering the program.

- As part of a multistate Extension educational program, a 7-night, 3 hours per night forest landowner short course was broadcast live via satellite from Clemson University to 9 locations in Tennessee. 179 landowners attended the short course. Followup surveys are going to be sent to short course participants to determine knowledge retention from the program and whether practices have been planned or implemented based on information gained from the short course. The program will be repeated in 2001

Tennessee's Forest industry is recognized as one of the top producers of hardwood lumber in the country. The main products of the state's hardwood industry are lumber, furniture and cabinets. Extension efforts to improve processing efficiency in hardwood sawmills include several workshops and short courses, onsite mill studies and cooperative research/extension projects. To assist mills with training current and new personnel about the hardwood grading rules and to introduce ways to add-value to lumber produced, a hardwood lumber grading workshop was conducted. An edging and trimming workshop was conducted in cooperation with the USDA Forest Service's Southern Research Station to assist sawmill personnel on the proper way to edge and trim boards as well as providing new techniques that can be used to increase the value of boards.

A regional project to improve the financial performance and conversion efficiency of hardwood sawmills through target size reduction using statistical process control with cooperators from The Agricultural Extension Service, The Tennessee Forest Products Center, and the USDA Forest Service's Northeastern Experiment Station was funded and begun. A project to determine the optimal method to saw elliptical logs was undertaken in cooperation with Ohio State University and USDA Forest Service's Northeastern Experiment Station. Several hardwood sawmill recovery/cost analysis studies have been conducted in cooperation with the USDA Forest Service's Northeastern Experiment Station. The goal of these projects is to provide sawmills with updated mill analysis methods and software that will allow the mills to become more cost efficient.

To meet the needs of the secondary wood products industry a basic hardwood lumber drying course teaching new drying operators quality methods for drying hardwood lumber was offered. A project to determine the effect of precision end trimming practices on kiln capacity, lumber degrade, and rough mill yields was begun in two large cabinet manufacturers. A project in cooperation with the University of Tennessee Center of Industrial Services was undertaken to demonstrate that wood waste could be used as a soil amendment.

Information and knowledge about the production and use of wood products was passed on to the industry through workshops, on-site visits, telephone calls, email, and information packets. Onsite visits were made to 12 hardwood sawmills located in 11 counties. A hardwood lumber grading workshop was attended by 10 individuals from 4 different industrial operations and impacted over 18,000 board feet of hardwood lumber production this year. A drying short course attended by 14 individuals impacted 9 lumber drying operations that combined dry approximately 400 million board feet of lumber per year. Ten individuals attended an edging and trimming workshop that impacted the production of over 20 million board feet of hardwood

lumber production each year. 137 individuals were educated on how to care for the wood around their homes through telephone consultations and the mailing of information.

As part of the UT Extension Service's Tennessee Master Logger Program (TMLP), 12 5-day workshops were held; 9 continuing education classes were held; and a research project to determine the effectiveness of logger training and BMP implementation rate was completed. The TMLP graduated 290 loggers impacting an estimated 72,500 acres of forest land consisting of 217 million board feet of timber harvested with a value of $32 million to landowners. The continuing education program with 9 classes had 300 participants.

Results from the research study indicate that those loggers who received training from the TMLP were more likely to implement BMPs during logging operations than those loggers who were not trained.

A three-week forestry academy short course was conducted for 24 county personnel with the Tennessee Department of Agriculture's Forestry Division. The academy provided 2,304 contact hours of instruction for the 24 participants. Post surveys indicated that the instruction and field exercises provided relevant information that broadened their forestry background, education and experience. The enhanced awareness of forestry principles and practices of Forestry Division county personnel should serve forest landowners with sound forestry information in their respective counties.

Annual grants (to date, a total of $72,000 over 5 years) have been secured from the Tennessee Urban Forestry Council, Tennessee Dept. of Agriculture, Forest Division to publish 6 to 8 color Extension publications annually on the care, maintenance and selection of trees. Twenty-seven peer-reviewed publications have been printed with seven of these completed during calendar year 2000. UT-FWF Extension personnel coordinate the project and serve as the primary or secondary author on most of the publications. Partnerships have been developed with Extension personnel in other sections (Ornamental Horticulture and Landscape Design and Entomology and Plant Pathology) to develop publications and serve as authors. The series of publications are accumulated and updated in a reference notebook that was distributed to each county Extension office, Forestry Division office, TN Urban Forestry Council members, Tree City, USA community managers and landscape professionals.

A comprehensive publication on dogwood entitled "Dogwoods for American Gardens" was written, published and distributed nationally during calendar year 2000. Printing and distribution was funded by a $30,000 grant from the National Urban and Community Forestry Advisory Council. The publication highlights the research on dogwood at UT and provides the most current, comprehensive and national information on the selection and care of dogwoods. esponse to these publications has been considerable. Our office has received requests for copies several times a week from people within and outside Tennessee.

A one-week workshop was designed for K-12 teachers. Two workshops were offered: one in West TN (Jackson), the other in East TN (Knoxville). Content of the workshop includes outdoor

laboratories, visits to forest industries and training in Project Learning Tree module. UT Extension and Experiment Station personnel, with the cooperation of the Tennessee Forestry Association and forest industry, provided leadership and training for the workshop. The workshop hours were offered for college credit or inservice credit. Twenty-eight teachers attended the workshop during the summer of 2000. These teachers will use information gained from the workshop in their classes with an average of 200 students per year, representing 5,600 students. Evaluations of the workshop by participants have consistently averaged between 4.8 and 4.9 on a 5.0 point scale.

Wildlife

The UT Agricultural Experiment Station and Extension Service have contributed to the reintroduction of elk populations to the State of Tennessee. These large mammals have been absent from the State for many decades. The University has redirected resources toward monitoring the survival of the released animals with radio collars. Although the effort is recent, introduced animals are currently surviving. Several years of research will be needed to determine whether the reintroduction is successful. If it is, the natural environment will be partially restored and the state's recreation resources will be enhanced.

Five years of field work have been completed on a research project to study the population ecology of black bears in the Okefenokee Swamp-Osceola ecosystem. More than 100 bears have been handled and thousands of radio locations have been obtained. The bear population at Okefenokee appears stable and represents the largest concentration of *U. a. floridanus*. Our findings at Okefenokee were relied upon by the U.S. Fish and Wildlife Service in their 1998 decision not to list the subspecies as a Threatened subspecies.

Extension programs were initiated this past year addressing many issues dealing with wildlife management on private lands in Tennessee. Over 40 presentations were given at various gatherings including field days, landowner meetings, county co-op seminars, county fairs and in-service training seminars for county agents. Other forms of information dissemination included on-site visits, demonstrations, publications, newsletter and newspaper articles, television shows, as well as telephone, telefax, and e-mail communication. Primary programs in the last year concentrated on the establishment and maintenance of native warm-season grasses, quality deer management, silvicultural methods designed to improve woodlands for wildlife, wildlife food plots, habitat improvement practices designed to benefit farm-wildlife, and methods to reduce and manage wildlife damage. Over 2,000 people were given information concerning various wildlife management topics during on-site oral presentations at meetings, seminars, short courses, and demonstration sites. More than 50 landowners were given personal attention via on-site visits to discuss needs and plans concerning wildlife management, as well as assistance associated with wildlife damage. More than 10 landowner cooperatives were formed across the state in an effort to manage deer herds under quality deer management guidelines. Approximately 150 students and natural resource professionals learned how to establish and maintain food plots for wildlife from the demonstration plots. Over three thousand landowners were provided publications after requesting information on how to establish and maintain

wildlife food plots on their property. Landowners interested in improving habitat for small game converted more than 5000 acres of tall fescue to native warm-season grasses.

The 4-H Wildlife and Fisheries Program was initiated in 1972 and now includes grade-level wildlife and fisheries projects, wildlife habitat judging, and the Food And Cover Establishment (FACE) project, the annual Jr. High Wildlife Conference, and wildlife instruction at 4-H camps. Delivery methods include direct instruction of youth, training of Extension agents and volunteer leaders, and distribution of publications and videos. This past year, the UT Agricultural Extension Service hosted the National 4-H Wildlife Habitat Evaluation Program. A total of 15,620 4-H youth participated in the Wildlife Judging Project. The Annual Jr. High Wildlife Conference consisted of 4 days of intensive training for 186 junior high-aged 4-H youth and 32 of their adult leaders representing 72 TN counties. This year, test scores increased from an average of 52.3% on a pre-test given at the start of the week to 63.2% on an exam given at the end of the conference. The 4-H FACE (Food and Cover Establishment) plot contest is sponsored each year by the Tennessee Wildlife Resources Agency (TWRA). Each year, TWRA provides seed for planting the plots, personnel to assist in judging plots, and prize money for contest winners. This year, 1,845 4-Hers entered the FACE Contest, of which at least 891 members planted wildlife food plots in 88 of Tennessee's 95 counties. This program enhanced approximately 13,365 acres of small-game habitat in Tennessee. An additional 10,000 youth received instruction on basic information concerning wildlife and fish at summer camps. Teams from 24 states (96 4-Hers) participated in the National 4-H Wildlife Habitat Evaluation Program contest.

Allocations for Goal 4 Projects and Activities:

UT 1862 Research:
- Hatch - $597,187
- Multistate - $134,928
- Animal Health - $6,030
- McIntire-Stennis - $80,093
- State Outlays - $3,458,046

UT 1862 Extension:
- Smith-Lever b and c - $924,258
- Smith-Lever d - $216,669
- State and County Allocations - $3,726,623

FTE's for Goal 4:

UT 1862 Research - 14.4

UT 1862 Extension - 40.5

****

KEY THEME - LAND USE

Title:
Agricultural Trends Seminar for Property Tax Assessors

Description:
Personnel in county tax assessors' offices need a basic understanding of factors influencing agricultural land values and the outlook for this local agricultural economy. They requested a seminar on these issues be presented during the county tax assessors' annual retreat.

An Extension multimedia presentation on factors determining rural land values and agricultural trends in Tennessee was developed and presented during the assessors' retreat.

Impact:
Approximately 380 people from the property tax assessors' offices, representing all 95 Tennessee counties, attended the seminar. Participants in the program reported a better understanding of current agricultural property issues and future trends for rural Tennessee.

Funding Source:
Extension.

Scope:
State specific
****

KEY THEME - WATER QUALITY

Title:
Clean Water In Tennessee Priority Program Progress Report

Description:
Clean Water Priority Team members have focused efforts on developing and delivering educational programs that:

a. Increase Tennesseans' understanding of watersheds and water quality issues.
b. Increase farmers' understanding of practices to protect and improve water quality including an evaluation of their operation, identification of possible changes and implementation of appropriate practices.
c. Increase families' understanding of ways to protect and improve water quality and the environment in and around their homes including an evaluation of their situation, identification of possible changes and implementation of appropriate changes.
d. Increase understanding of water quality issues among youth, teachers and volunteers who work with youth.

The Clean Water in Tennessee team is composed of Extension faculty working at the state, district and county levels.

Team members were involved in the following educational efforts:

- Writing a handbook of best management practices for agriculture and forestry. This project is supported by a contract with the Tennessee Department of Agriculture for $156,000.
- Creating a Home-A-Syst CD-ROM for middle-school aged youth. This project is supported by an EPA 319 grant of $51,000.
- Planning, conducting and evaluating five agent training programs with a total of 159 participants.
- Introducing the use of the Internet in agent training.
- Analyzing the economic and environmental impacts of the Environmental Quality Incentives Program (EQIP) on three representative Tennessee farms. This project was supported by a NRCS/USDA contract for $17,000.
- Developing and conducting the aquatics challenge for area and state Envirothon competitions and collaborating on preparing the comprehensive question for the state competition.
- Participating in planning and conducting three field days. Two of these field days were multi-state events.
- Writing five proposals for extramural grant funding:
- "Protecting and Improving Water Quality Through Public Lands Management" $56,600. EPA 319 program, pending.
- "Southern Region Water Resource Management" $120,000. CSREES/USDA 406 program, funded.
- "Economic Impacts of Comprehensive Nutrient Management Planning on Poultry Farms" $586,400. CSREES/USDA 406 program, not funded.
- "Evaluation of Best Management Practices for Protecting Water Quality Following Land Application of Poultry Litter". $160,225 Southern Region SARE Pre-proposal, pending.
- "Economic Impacts of Comprehensive Nutrient Management Planning on Poultry Farms". $500,000 EPA section 104 pre-proposal, pending.

Impact:

Over 500 farmers, agency personnel, local officials and interested citizens learned first hand about water quality protection and improvement during the three field days.

Over 150 Extension agents are better prepared to assist their clientele protect and improve water resources as a result of participating in training opportunities.

Over 600 high school students and 115 teachers/coaches increased their knowledge and understanding of water and other environmental issues, through participation in the Envirothon program.

Almost $120,000 in external funds were obtained to support more effective water quality educational programming.

Funding Source:
Smith-Lever, State and external funds

Scope:
State Specific
****

Title:
Water Quality BMPs for Beef Cattle Producers

Description:
Cow-calf operations are a major enterprise in Tennessee and adjoining states. These operations can significantly impact water quality. A multi-state field day with the theme "BMPs for beef cattle producers" was planned and conducted at the Northwest Georgia Experiment Station on May 24-25, 2000. People from Georgia, North Carolina and Alabama as well as Tennessee participated.

Impacts:
Over 60 individuals participated. Follow-up evaluation showed they increased their knowledge of the water quality impacts of beef cattle production, economically feasible alternatives to address these impacts and available technical and financial assistance. Future field days are planned to further foster BMP adoption.

Funding Source:
Smith–Lever, Hatch and State. The University of Georgia obtained a CSREES grant to support installation of demonstration BMPs as well as some field day costs.

Scope:
Multistate Research and Extension (Tennessee, Georgia, North Carolina and Alabama)
****

Title:
Riparian Zone/Alternative Livestock Watering Systems Field Day

Description:
The Tennessee Agricultural Extension Service, working jointly with the Tennessee Department of Agriculture and the Natural Resources Conservation Service, initiated a program to educate producers, Extension agents, Natural Resources Conservation Service personnel and other interested parties on dependable alternative methods for providing livestock water. Field days, county meetings and educational literature were used to transfer information learned from on-farm demonstrations to beef producers, Extension Agents and NRCS county personnel on the

environmental benefits associated with limiting or removing cattle access to streams; the costs, installation and performance of alternative watering systems; and economical fencing options.

Impact:
Approximately 10% of 128 beef producers attending these field days fenced their livestock from streams and installed alternative watering systems. USDA NRCS county offices indicate producer interest in this program continues to grow.

Funding Source:
Smith-Lever, NRCS and State

Scope:
State Specific
****

Title:
Tillage, residue management and water quality

Description:
Sediment and associated nutrients from eroding cropland are major sources of non-point pollution in Tennessee. Soil erosion control through no-till and residue management was a primary topic of three inservice training sessions for county agents, two special training sessions for farm supply co-op employees, two update sessions for certified crop advisors, four county-based producer meetings, and two experiment station field day presentations. In these sessions 85 agents, 75 certified crop advisors and 395 farmers/agribusiness personnel received update training in this topic. Three news articles and one TV interview were produced for mass media on the topic of soil erosion in Tennessee. One experiment station test and four on farm tests were conducted in the area of no-till.

Impact:
Use of no-till for major Tennessee crops exceeded 50% of acreage for the first time ever. No-till use in cotton reached 300,000 acres, or half of all cotton planted. The additional 300,000 acres of no-till on Tennessee cropland is estimated to reduce soil erosion by three million tons annually and to save at least 7.5 million dollars in off-site damage by sediment.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:

Implementation and management of a system to store, concentrate and degrade pesticide-contaminated wastewater: Phase II

Description:
A soil-bed bioreactor (SBBR) system has been developed and evaluated for its effectiveness in evaporating and degrading pesticide rinse water. The system has been laboratory tested using soil columns and successfully degraded and evaporated both herbicide and insecticide rinse solutions. A full-scale system has been designed to include a covered rinse pad coupled with a greenhouse to house the SBBR system. Plans are underway to implement the system on one of the UTIA Experiment Stations.

Impact:
When fully implemented with in-field sprayer rinse systems, the system has the potential to dramatically reduce the volume of on farm generated pesticide rinsates. Volume reduction could be as great as 80-90 percent, depending on individual management practices. (Co-lead project with Dr. Daniel Yoder)

Funding Source:
Hatch and State

Scope:
Integrated Research and Extension
****

KEY THEME - INTEGRATED PEST MANAGEMENT

Title:
Tennessee Cotton Integrated Plant and Pest Management (IPM)

Description:
An Extension IPM educational booklet and slide data was used in a six-county area in west Tennessee related to weeds, insects, disease, soil fertility and other IPM materials. Weekly in-field sessions and farm visits were used to educate producers, scouts and other private enterprise concerning the objectives of the IPM program so that yields could be maintained and/or increased. A revised University of Tennessee cotton plant and pest IPM scouting form was also developed and made available. Three (3) western district scouting schools, 336 western district circular educational letters and 7 news articles were utilized to show producers the benefits of following recommended IPM practices. One (1) cotton insecticide demonstration was used to show cotton producers that University of Tennessee Extension Service recommendations are effective in controlling cotton insects.

Impact::

The cotton IPM program offers producers an educational scouting and management service which deals with primary yield limiting factors. Producers on the program receive a weekly comprehensive report regarding these pests and a weekly letter related to pest problems.

Established a spring boll weevil trapping program. The trapping program information was beneficial in predicting overwintered survival rate and provided support for U.T. pin-head square recommendations.

According to the latest cotton producer survey, 86% of cotton producers are using some degree of IPM practices which has resulted in pesticide reduction by an average of 31%. This represents a savings of approximately $882,217.58 for Lauderdale County cotton producers or $19.72 per acre.

Seventeen (17) Lauderdale County cotton producers enrolled approximately 6,717 acres in the cotton IPM program. Results from the program pointed out that 67% of the acres on the program needed at least one treatment for thrips, 72% reached the treatment level due to boll weevil conventional damage and 4% of the acres on the program needed treatment due to bollworm/budworm pressure. Also, 11% of the total acres on the program reached threshold levels due to plant bugs, 12% of the acres reached treatment levels due to aphids and 1% of the acres were treated for stinkbugs.

Funding Source:
Smith-Lever (3d and 3b&c) and State

Scope:
State Specific
****

Title:
Fire Ants

Description:
Currently, twenty-nine counties along Tennessee's southern border and more are infested with fire ants which can inflict a painful sting, build large mounds that can interfere with agricultural machinery, attack ground-nesting birds, newborn cattle and seedlings, and damage electrical power lines and other electrical equipment.

Three biological control agents, a microsporidian and two species of phorid fly, have been released against imported fire ants. The microsporidium, Thelohania solenopsae, infects fire ant colonies and chronically weakens them. Workers transmit the pathogen to the queen and the disease slowly reduces her weight causing fewer and fewer eggs to be laid, all of which are infected with the pathogen. This further weakens the colony. Pseudacteon or decapitating phorid flies, oviposit in an imported fire ant worker's thorax. The larva migrates into the ant's head, the ant's head eventually falls from the body and the fly pupa completes development 18 days later.

In addition to killing the ants, these phorid flies reduce foraging by causing the ants to assume a defensive posture when under attack and by causing them to remain in the nest to avoid the fly.

In 2000, another decapitating fly, Pseudacteon curvatus, better suited to cooler temperatures, was released using a new technique in Bradley, Monroe, Fayette and Hardeman Counties, Tenn. (Ames Plantation). Sites were monitored throughout the year to determine infection at all biocontrol sites.

Thirteen presentations on fire ant biology and management were made at county meetings or field days to over 1000 people. A regional publication on fire ant management in urban areas was developed jointly with specialists from the southern states. Mass media including newspapers,
departmental newsletters, Agricultural and Family and Consumer Sciences News Packets, and television and radio interviews were used to promote fire ant control strategies and research from The University of Tennessee to communities in Tennessee, the southeast, the nation and beyond. Mass media highlights included a televison production for the "Heartland Series," a Appalachian region-themed program produced in Knoxville and seen on many television stations in the region.

Impact:
Once established, these biological control agents should provide a more permanent solution than insecticides. While these biological control agents are not expected to eliminate imported fire ants, they are expected to reduce populations, control spread and tip the ecological balance in favor of other ant species.

Funding Source:
Smith-Lever (3d and 3b&c), State, USDA Regional (Southern) IPM Grants Program, grant from the Tennessee Nurseryman's Association and two other grants from National Biocontrol Institute (NBCI)

Scope:
State Specific
****

Title:
Alternative treatments to manage honey bee parasitic mites.

Description:
The honey bee is economically important as a pollinator of Tennessee fruits and vegetables valued annually in excess of $118 million. Parasitic mites have caused beekeepers to lose 50% of their colonies. Dependence of one chemical treatment for ten years has "induced" mite resistance and contaminated bee wax combs. Alternative treatments are needed that kill mites and are safe to bees, humans and the environment. New "safer" treatments were compared for efficacy in three field trials. Formica acid gel killed 95%+ of tracheal mites and was also

effective at 1X and 2X rates in gelpack bags and when applies in plastic containers to reduce *Varroa* mite populations. Api Life VAR, a botanical oil mixture was also effective against *Varroa*.

Impact:
Formic acid and ApiLife VAR can be used in Tennessee as new alternative treatments. Data will be used to support a section 3 registration (in progress) for use of Api Life VAR in the US. These materials are less hazardous to bee products and should be used as tools in an integrated management plan to reduce mite population levels below an economic threshold. These treatments should save Tennessee beekeepers millions of dollars while saving thousands of honey bee colonies. More colonies of bees will be available to pollinate Tennessee fruits and vegetables in commercial crops and home gardens.

Funding Source:
Smith-Lever and State (Special appropriation from Tennessee Legislature)

Scope:
State Specific
****

Title:
Integrated Pest Management in Schools

Description:
An IPM in Schools Program was initiated in the spring of 1996 as a joint venture between The University of Tennessee Agricultural Extension Service and The Tennessee Department of Agriculture, Division of Regulatory Services. The IPM program has been promoted to superintendents, pest management professionals, vocational agricultural teachers, technicians attending Pesticide Applicator Training, adult agricultural extension agents, Master Gardeners, and graduate students. A manual, PB1603, Suggested Guidelines for Managing Pests in Tennessee's Schools: Adopting Integrated Pest Management (IPM), was developed and distributed to all primary and secondary schools (public and private) in the state. In 1997, results from a school system survey indicated 11.7% are using IPM. Phone calls were made in 1999 to those 10,000 or more student school systems that were classified as not using IPM to determine if their pest management practices had changed. Results of the 1999 phone survey reveal three additional school systems are trying IPM. Our latest estimates raise the percentage of school children in schools using IPM to 38%. We can assume a reduced risk of pesticide exposure to these children.

This year's school IPM efforts included the following: a demonstration on managing pests in Tellico Plains' Elementary and Middle Schools; and presentations for Tennessee environmental educators, pest management professionals with school accounts and the Chattanooga Pest Control Association. At least 263 pest management professionals attending pesticide applicator

training in category 7 and 322 Master Gardeners in 8 counties were exposed to the concepts of school IPM.

Impact:
In November, a young student, "known" to have a sensitivity to a certain pesticide, felt ill while at school and officials decided it was in the best interest of the child to keep her home bound. The Extension IPM specialsit met with school officials, maintenance staff, the county Extension agent, pest management professionals and employees of Eco-SMART (producer of environmentally-friendly pest control products) to explain how to manage pests in schools using IPM (reducing pest populations around structures by removing their access to food, water and harborage and decreasing the risk of pesticide exposure to people, pets and the environment). They agreed to adopt this IPM program, stop spraying pesticides unnecessarily, and the child plans to continue her education in school again in the new year.

Funding Source:
Smith-Lever (3d and 3b&c) and State

Scope:
State Specific
****

Title:
Household and Structural IPM

Description:
Extension IPM and Home Insect Lectures were provided to 322 Master Gardeners in 8 counties. Master Gardeners in Davidson, Cumberland and Putnam Counties were surveyed prior to and after training to determine the practices they plan to adopt.

In addition, 263 pest management professionals were trained in IPM through 32 videotaped and interactive TV sessions for pesticide applicator training in category 7. Ants have been identified as the number one plague of the pest management professional. Four formal presentations or workshops that emphasized ant identification and IPM were provided to over 907 pest management professionals. Also, 7 presentations on urban IPM were presented to 563 extension agents, the public or pest management professionals. Demonstrations in ant and termite control were conducted to explore new strategies for controlling these pests.

Pest identification is one of the key steps to managing pests. Before management decisions can be made, the pest must be properly identified. Over 179 household, structural, landscape and vegetable pests were identified in the Urban IPM lab or through the UT Agricultural Extension Service Distance Diagnostics Web Site for agents, homeowners and pest management professionals.

Impact:

Integrated Pest Management (IPM) reduces pest populations around structures by removing their access to food, water and harborage and decreases the risk of pesticide exposure to people, pets and the environment. Results from before and after training of Master Gardeners in Davidson, Williamson and Cumberland Counties indicated that participants increased their use of 5 - 10 IPM practices, such as using glue boards to monitor for pests, by greater than 50% and increased their use of 15 - 18 IPM practices by 20 - 50 %. We can assume a reduced risk of pesticide exposure to these 172 residents and their subsequent contacts as they answer phones and disseminate information for the University of Tennessee Agricultural Extension Service.

Funding Source:
Smith-Lever (3d and 3b&c) and State

Scope:
State Specific

KEY THEME - PESTICIDE APPLICATION

Title:
Pesticide Applicator Training

Description:
Pesticide applicators must be certified in Tennessee in order to buy restricted use pesticides and certified to use them or working directly under the supervision of a certified applicator. Pesticide applicator training sessions were held monthly and quarterly in various areas of the state to train Private Applicators (PA) and Commercial Applicators (CA) in the proper use of pesticides. Commercial applicators were also prepared to take an exam to demonstrate their proficiency in the safe pesticide use.

Impact:
Seventy-four (74) PAs were trained and certified.
713 CAs were initially trained and certified.
427 schools were conducted to train CAs toward their recertification.
433 CAs earned points toward their recertification.
1,300 new Master Gardeners (MG) were initially trained in pesticide safety.
1,000 experienced MGs were updated on the latest pesticide safety practices.
435 PAs and CAs were trained and certified as WPS Workers, Pesticide Handlers and Trainers.
125 scouts and consultants were trained in pesticide safety.

This large number of people trained and updated demonstrated a willingness to learn the latest techniques in pesticide safety and Worker Protection Standards, which will have a lasting impact on protecting individuals and the environment. Fewer pesticide poisoning cases will result. The emphasis on IPM will result in a reduction and more judicious use of pesticides, which is the aim of this program and present administration. Planning sessions were held to update and revise all

training materials. A new ornamental and turf manual was developed for CAs. A new bird manual is at the printers. A new hort lawn and turf manual for licensing applicators is ready to be sent to the printers.

Funding Source:
Smith-Lever, State and US-EPA

Scope:
State Specific
****

KEY THEME - AGRICULTURAL WASTE MANAGEMENT

Title:
Poultry Farmers Complete a Nutrient Management Plan

Description:
All new or expanding poultry operations in Tennessee are required to obtain a Class II CAFO General Permit at least 30 days prior to feeding chicks in the new facilities. Existing poultry farms in an impaired watershed have until May 1, 2001 to complete a nutrient management plan to obtain a General Permit. Three Extension publications "Guidelines for Developing and Implementing a Poultry Nutrient Management Plan", "Tennessee Class II CAFO General Permit Requirements for the Poultry Industry" and "Poultry Litter Sampling and Testing" were developed and used in educational programs for poultry farmers. Approximately 600 poultry farmers representing five poultry firms attended meetings to learn more about Tennessee's animal waste and water quality regulations.

Impact:
Sixty-five poultry farmers required to obtain a General Permit received assistance in developing a nutrient management plan. With Extension assistance, another 102 poultry farmers voluntarily completed a nutrient management plan for their farm. Farmers are beginning to implement best animal waste management practices involving proper handling, storage and application of approximately 120,000 tons of litter on these farms.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

KEY THEME - NATURAL RESOURCES MANAGEMENT

Title:
Managing Farm Ponds for Food, Recreation and Income

Description:
There are presently about 95,000 acres of farm ponds in Tennessee with established balanced populations of largemouth bass and bluegill. These ponds receive varying amounts of management and overall represent a tremendous resource with potential for providing family recreational fishing and high quality meat protein for food. Educational opportunities related to aquatic resources were provided to pond owners, county Extension personnel, vo-ag teachers, forestry professionals, university students, other youth and the general public. More than 1,150 people were taught with 4,600 hours of instruction where they learned best management practices relative to their ponds and fish production. Current pond information was learned by 98 Extension agents and agriculture teachers at five all-day workshops. Several pond owners were recipients of individual attention to their pond problems -- 16 on-site visits were made to ponds in 16 counties, 98 water samples were analyzed and pond owners learned the importance of water quality parameters like alkalinity and pH to the welfare of their fish. After aquatic weeds from their ponds were identified, 125 pond owners applied recommended chemical controls and stocked Chinese grass carp. Pictures of aquatic weeds made with a digital camera and sent on the internet were used for identification for the first time this year. Printed educational materials related to fish and pond management were given to clients by Extension. Most of the publications are also available on the departmental web page and the Ag. Communications webpage. Timely fisheries information was provided in monthly updates to county offices by the specialist. This information is used in many county newspaper articles and on their local radio programs. A quarterly newsletter with fisheries articles and other natural resources information is mailed to 5, 215 people.

Impact:
From the educational materials provided and the learning opportunities experienced, 6,698 people learned principals to help them be better stewards of their aquatic resources. Results were increased fish production, more hours of recreational fishing were experienced, ponds were more aesthetically pleasing and more pounds of fish were available as high quality protein for table food. Fish production in the recreational ponds owned by this audience would be around 335,000 pounds. With 25% audience participation in practices learned, production should have increased 85,740 pounds of fish worth about $256,220.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:

Natural Resources and the Environment

Description:
Tennessee is experiencing rapid growth and environmental changes which can dramatically affect the accessibility and quality of natural resources. To make informed decisions, Tennessee youth who will become the leaders of the future, must understand the interconnectedness between human and natural resources. Opportunities for youth and adults to explore their environment, examine the interconnectedness of human and natural resources, develop outdoor classrooms, apply the knowledge they have gained, improve the environment and address environmental issues were provided by Extension in 2000. Educational efforts include school year programs at 4-H Centers, camps and conferences, outdoor learning laboratories, judging teams, service learning projects and classroom programs. In 1999-2000, 3,985 youth participated in school year environmental education programs at the W. P. Ridley, Clyde York and Clyde Austin 4-H Centers. A summer camp staff member at each of the four 4-H Centers, provided natural resource and wildlife activities for more than 7500 Junior and Junior High Campers. Nearly 200 Junior High youth participated in the annual week long Wildlife Conference.

Thirty-three counties participated in district Junior High and Senior High Wildlife judging contests. Tennessee was also the host state for the Senior High National Wildlife Habitat Enhancement contest. Twenty-four states identified animal foods and wildlife management practices, evaluated aerial photos and wrote urban and rural development plans for wildlife habitat. The Tennessee team placed seventh.

More than 600 high school students and 125 coaches (many of them 4-H members or leaders) participated in the Enviro-thon, an environment evaluation contest. Agents in 20 counties are currently working with schools and communities in the development of outdoor classrooms.

Senior high age 4-H'ers were encouraged to complete service learning projects during the year as a requirement for All Star membership.

Impact:
Evaluations from the environmental programs conducted at the 4-H centers show that, as a result of participation in the programs, teachers and students reduced, reused and recycled, planted trees, shrubs, flowers and gardens, enhanced wildlife habitat, incorporated educational activities into classroom curriculum, and presented community programs.

Post tests show that delegates to the Wildlife Conference increased knowledge about a variety of wildlife topics by an average of 21 percent.

Senior high age 4-H members and others assisted in the development of the Cumberland Trail, repaired a drainage ditch at a Rec park in Martin, Tennessee, created an A-Z garden, planted 178 trees, cleaned two miles of highway, and removed 4.8 miles of trash from riverbanks.

Funding Source:

Smith-Lever, State, special grants and gifts

Scope:
State Specific
****

KEY THEME - FOREST RESOURCES MANAGEMENT

The recently hired TSU Extension forestry Extension specialist is collaborating with several agencies, departments and individual farmers to meet the needs of forestland owners in Tennessee.

Title:
County Forestry Association Expansion Program

Description:
Two County Forestry Associations (CFA) were operating in Tennessee prior to October 1, 1999. Since then, a committee has formed to refocus effort on expanding the program. During the past year, the number of active CFAs has increased to eight. To accomplish this, information - key people and organizational meetings (three meetings for each new county) were held. An educational newsletter was started and four forestry field days were organized. Several seminars on forestry topics were presented. Plans for a spring 2001 inservice training on "how to start a CFA" are underway, with a goal of adding an additional twelve associations in 2001.

Impact:
CFAs are lay-lead, nonprofit organizations that serve the purposes of: (1) educating private forest landowners, (2) providing a united base between landowners, loggers, sawmillers and those in the secondary forest products industry, and (3) educating the public about the positive and truthful message of forestry.

The eight active CFAs currently have 429 members, for an average of 54 members per county, who own an estimated 64,350 acres of forest land. As was the original intention, these associations are becoming autonomous, setting their own agendas, and seeking some assistance from the UT Extension Service for programming and communication. Many associations have become quite active, writing articles for their local newspaper, holding forestry poster contests for school children, soliciting speakers for meetings, planning their own field days, collecting dues, writing their legislators and inviting them to speak, etc. Typically, those who join associations, set the example for the rest of the community to follow. By establishing enthusiasm with a core group, educating that core group, and providing collateral leadership to that core group, the number of forested acres being managed in a responsible manner has increased. Knowledge is building on knowledge. Profits to landowners are increasing. The image of the forestry and logging industry is improving. And Tennessee's number one land use, forests, is being utilized, promoted, and improved for the benefit of it's people

Funding Source:
Smith-Lever, State and Tennessee Forestry Association,

Scope:
State Specific
****

Title:
Extension Forest*A*Syst Program

Description:
The potential for forestry non-point source pollution is greatest from activities related to timber harvesting and reforestation. Timber haul roads, skid trails, log landings and mechanically prepared areas are sites where the potential for soil movement is greatest. A state Forest*A*Syst (FAS) committee, which includes representatives from multiple disciplines and agencies, has been established to create a FAS manual. Three meetings have occurred, and the second draft of the FAS manual is near completion.

Impact:
To date, the main impact has been to create awareness of FAS, to secure support for the program from various agencies, to draw upon the knowledge of professionals from these agencies, and to formalize a procedure for delivering the program. Plans are to present FAS to professionals in the Extension Service, the Tennessee Wildlife Resources Agency, the Natural Resource Conservation Service and the Tennessee Division of Forestry. They, in turn, will carry the message to private forest landowners.

Funding Source:
Smith-Lever, State and the North Carolina State University Extension Service

Scope:
State Specific
****

Title:
Wood Products Programming

Description:
Tennessee's Forest industry is recognized as one of the top producers of hardwood lumber in the country. The main products of the state's hardwood industry are lumber, furniture and cabinets. Educational programs, personal consultation, and published materials are required to assure that the hardwood industry efficiently utilizes the states resources and remains competitive in the ever changing global economy.

Extension efforts to improve processing efficiency in hardwood sawmills include several workshops and short courses, onsite mill studies and cooperative research/extension projects. To assist mills with training current and new personnel about the hardwood grading rules and to introduce ways to add-value to lumber produced, a hardwood lumber grading workshop was conducted. An edging and trimming workshop was conducted in cooperation with the USDA Forest Service's Southern Research Station to assist sawmill personnel on the proper way to edge and trim boards as well as providing new techniques that can be used to increase the value of boards.

A regional project to improve the financial performance and conversion efficiency of hardwood sawmills through target size reduction using statistical process control with cooperators from The Agricultural Extension Service, The Tennessee Forest Products Center, and the USDA Forest Service's Northeastern Experiment Station was funded and begun. A project to determine the optimal method to saw elliptical logs was undertaken in cooperation with Ohio State University and USDA Forest Service's Northeastern Experiment Station.

Several hardwood sawmill recovery/cost analysis studies have been conducted in cooperation with the USDA Forest Service's Northeastern Experiment Station. One particular sawmill study looking at log cost verse lumber recovery was undertaken as a graduate student special project. The goal of these projects is to provide sawmills with updated mill analysis methods and software that will allow the mills to become more cost efficient.

To meet the needs of the secondary wood products industry a basic hardwood lumber drying course teaching new drying operators quality methods for drying hardwood lumber was offered. A project to determine the effect of precision end trimming practices on kiln capacity, lumber degrade, and rough mill yields was begun in two large cabinet manufacturers. A project in cooperation with the University of Tennessee Center of Industrial Services was undertaken to demonstrate the wood waste could be used as a soil amendment for. This project will result in the reduction of the cost of waste removal and increase the utilization of the state's wood resources.

Information and knowledge about the production and use of wood products was passed on to the industry through workshops, on-site visits, telephone calls, email, and information packets. Requested service to the wood industry included: methods for controlling stain in lumber, reducing defects and increasing resource utilization in drying operations, proper methods for dry kiln operation, proper dry storage, and determining new markets for wood waste.

Impact:
Onsite visits were made to 12 hardwood sawmills located in 11 counties. These mills produce between one million to 20 million board feet of lumber each per year. A hardwood lumber grading workshop was attended by 10 individuals from 4 different industrial operations and impacted over 18,000 board feet of hardwood lumber production this year. A drying short course attended by 14 individuals impacted 9 lumber drying operations that combined dry approximately 400 million board feet of lumber per year. Ten individuals attended an edging and

trimming workshop that impacted the production of over 20 million board feet of hardwood lumber production each year. 137 individuals were educated on how to care for the wood around their homes through telephone consultations and the mailing of information.

The following projects were conducted through funding from external sources:

Bond. B. H. (10%) Increasing the Yield of Hardwood Lumber through Precision End Trimming. Funded by the University of Tennessee Institute of Agriculture. Idea Grant. $1,916.

Bond, B. H. (15%) Increasing the Yield of Hardwood Lumber through Precision End Trimming. Funded by the USDA Forest Service. Northeastern Experiment Station. $36,446. Period of support 7/15/00-3/1/02.

Buggeln, R. and B. Bond (10%). Sawdust: a lever of sustainable economic interaction within rural West Tennessee counties. Environmental Protection Agency. Funded by the Sustainable Development Challenge Grant Program. 7/1/00 – 5/31/02. $150,000.

Young, T. M. and B. H. Bond. Using "Real-Time" Statistical Process Control to Reduce Hardwood Lumber Thickness Variation, Target Sizes and Improve Lumber Recovery. Funded by the USDA Forest Service. Northeastern Experiment Station, $120,232. 7/15/00-3/1/02.

Funding Source:
Smith-Lever, Hatch, State and grants and contracts

Scope:
Multistate Research and Extension (Southern Region states, Northeastern states, Ohio)
****

Title:
Tennessee Master Logger Program (TMLP)

Description:
What has been done:

a. 12 workshops of 5 days each consisting of 40 hours of instruction per participant were held
b. 9 continuing education classes of one day each were held
c. Research project to determine the effectiveness of logger training and BMP implementation rate was completed.

Impact:
The program graduated 290 loggers (11,600 contact hours of training) impacting an estimated 72,500 acres of forest land consisting of 217 million board feet of timber harvested with a value of $32 million to landowners. The continuing education program with 9 classes (8 hours of instruction per class) had 300 participants and 2,400 contact hours.

Results from the research study indicate that there was a substantial association between BMP implementation and logger training, i.e., those loggers who received training from the TMLP were more likely to implement BMPs during logging operations than those loggers who were not trained. Thus, the TMLP has contributed to improved implementation of BMPs by loggers in Tennessee.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Tennessee Forestry Academy

Description:
Non-degree county forestry personnel from the Tennessee Department of Agriculture, Forestry Division do not have the training to answer basic forestry questions from the public. A three-week forestry short course (96 hours) was conducted for 24 county personnel with the Forestry Division at the UTK campus consisting of classroom training and field exercises. UT-Forestry Wildlife and Fisheries (FWF) faculty (Extension, research and teaching) provided instruction and FWF Extension personnel coordinated the course.

Impact:
2,304 contact hours of instruction for 24 participants. Post surveys of participants indicated that the instruction and field exercises provided relevant information that broadened their forestry background, education and experience. The enhanced awareness of forestry principles and practices of Forestry Division county personnel should serve forest landowners with sound forestry information in their respective counties.

Funding Source:
Smith-Lever and State (including a contract from Tennessee Department of Agriculture Forestry Division)

Scope:
State Specific
****

Title:
Master Tree Farmer 2000 Forest Landowner Satellite Short Course

Description:

Over 11 million acres of forest land in Tennessee are owned by non-industrial private landowners. These landowners desire research-based information on how to practice sustainable forestry and how to manage their land to meet their objectives. Considering that nearly 200,000 people own 10 or more forested acres in Tennessee, the Extension Service was looking for a forestry short course that could be broadcast statewide through distance learning techniques.

A 7-night, 3 hours per night forest landowner short course (21 hours of instruction) was broadcast live via satellite from Clemson University to 9 locations in Tennessee in February and March 2000 as part of a regional 10 state program. 179 landowners attended the short course (3,759 contact hours). Regional experts presented information in the following subjects: Introduction to Forestry and Forestry Terms; Basic Forest Finance, Estate Planning, Taxation; Pine Management; Hardwood Management; Marketing, Timber Harvesting, Timberland Security; Wildlife Management; and Forestry Services and Programs for Landowners.

Impact:

A. 60% of participants had never attended an Extension program
B. 70% of participants had never attended a forestry education program
C. 65% of participants were absentee landowners, a previous untapped audience for natural resource Extension programs
D. Participants owned an estimated 45,000 acres of forest land
E. Participants were primarily college graduates, owned a home computer with internet access and would attend additional satellite short courses
F. Satellite, distance learning technology was an effective method to conduct a statewide forestry short course. Cost was less than $4.50 per contact hour.
G. Participants were enthusiastic about the short course and were eager for even more information
H. Participants were most interested in finances (investments, taxes and estate planning), marketing, hardwood and pine management and wildlife.

Followup surveys are going to be sent to short course participants to determine knowledge retention from the program and whether practices have been planned or implemented based on information gained from the short course. The program will be repeated in 2001

Funding Source:
Smith-Lever, State and regional grants

Scope:
Multistate Extension
****

Title:
Trees for Tennessee Landscapes Publication Series

Description:

Annual grants (to date, a total of $72,000 over 5 years) have been secured from the Tennessee Urban Forestry Council, Tennessee Dept. of Agriculture, Forest Division to publish 6 to 8 color extension publications annually on the care, maintenance and selection of trees. 27 peer-reviewed publications have been printed with seven of these completed during calendar year 2000. All publications are available on the UT-Forestry, Wildlife and Fisheries Extension Web page. UT-FWF Extension personnel coordinate the project and serve as the primary or secondary author on most of the publications. Partnerships have been developed with Extension personnel in other sections (Ornamental Horticulture and Landscape Design and Entomology and Plant Pathology) to develop publications and serve as authors.

The series of publications are accumulated and updated in a reference notebook that was distributed to each county Extension office, Forestry Division office, TN Urban Forestry Council members, Tree City, USA community managers and landscape professionals.

A comprehensive publication on dogwood entitled "Dogwoods for American Gardens" was written, published and distributed nationally during calendar year 2000. Printing and distribution was funded by a $30,000 grant from the National Urban and Community Forestry Advisory Council. The publication highlights the research on dogwood at UT and provides the most current, comprehensive and national information on the selection and care of dogwoods.

Impact:
Response to these publications has been considerable. Our office has received requests for copies several times a week from people within and outside Tennessee.

Extension offices, Tennessee Department of Agriculture-Forestry Division offices, and tree care professionals have a notebook of publications that provide the most up-to-date information on urban tree selection and care that is relevant to landscapes for homeowners in Tennessee.

Impact of dogwood publication is unknown at this time as publication was completed in December, 2000.

Funding Source:
Smith-Lever, State and Grants
****

Title:
Teacher Conservation Workshops

Description:
K-12 teachers desire further training and hands-on, current information about forest biology, ecology and management. Participants learn by demonstration and practical exercises (field trips) how current forest conservation practices can be integrated into classroom work and student projects. A one week workshop was designed for K-12 teachers. Two workshops are offered each summer: one in West TN (Jackson), the other in East TN (Knoxville). Content of

the workshop includes outdoor laboratories, visits to forest industries and training in Project Learning Tree module. UT Extension and Experiment Station personnel, with the cooperation of the Tennessee Forestry Association and forest industry, provided leadership and training for the workshop. The workshop hours were offered for college credit or inservice credit.

Impact:
28 teachers representing 1,120 contact hours of instruction attended one of the workshops during the summer of 2000. These teachers will use information gained from the workshop in their classes with an average of 200 students per year, representing 5,600 students. Teachers spend one week away from home during the summer to attend the workshop with the room and board on a college campus provided free of charge by the financial sponsors. Evaluations of the workshop by participants have consistently averaged between 4.8 and 4.9 on a 5.0 point scale.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Forest Landowner Education Extension Initiative (FLEEI)

Description:
The Forest Landowner Education Extension Initiative (FLEEI) focuses on educational programs and resource demonstrations for the over 400,000 non-industrial private forest landowners who own over 80 percent or 11 million acres of forest land in Tennessee. The objective is for landowners to improve the profitability of forest ownership, improve management of the forest resource and understand the ecology of forest development and succession (forest biology).

A four-year plan of work for forest landowner education has been formulated and implemented. Mechanisms to achieve objectives include a curriculum-based program of forest and wildlife short courses for enhanced education of landowners, formation of county forestry association for landowners, demonstration of forest practices on state forests, experiment stations and forest industry lands.

Impact:
For calendar year 2000

A. Master Tree Farmer 2000 satellite forest land owner short course
a. Formation of 8 county landowner associations
a. Work plan developed for demonstration areas for forest practices
a. Inservice training in timber sale procedures. Plans in place for inservice training on economic feasibility and investment of forest practices

a. Grant written and plans in place to develop and implement Forest*A*Syst program for landowners
a. County Forestry Brochures in development

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

KEY THEME - WILDLIFE MANAGEMENT

Title:
Population ecology of black bears in the Okefenokee Swamp-Osceola ecosystem

Description:
Five years of field work have been completed. More than 100 bears have been handled and thousands of radio locations have been obtained. The bear population at Okefenokee appears stable and represents the largest concentration of *U. a. floridanus.*

Impact:
Our findings at Okefenokee were relied upon by the U.S. Fish and Wildlife Service in their 1998 decision not to list the subspecies as a Threatened subspecies. Their rationale was that because of the size and stability of the Okefenokee and other large populations of bears in Florida, the subspecies were not in immediate jeopardy of extinction.

Funding Source:
State and Other

Scope:
State Specific
****

Title:
Wildlife Management Programming

Description:
Wildlife management is a topic of interest for virtually every landowner at some point in time. Levels of interest vary dramatically, from game management plans designed to improve hunting opportunities, to ideas for attracting “backyard” wildlife, to solutions for problems associated with wildlife damage.

Extension programs were initiated addressing many issues dealing with wildlife management on private lands in Tennessee. Over 40 presentations were given at various gatherings including Field Days, group landowner meetings, county co-op seminars, county fairs and in-service training seminars for county agents. Other forms of information dissemination included on-site visits, demonstrations, publications, newsletter and newspaper articles, television shows, as well as telephone, telefax, and e-mail communication.

Primary programs in the last year concentrated on the establishment and maintenance of native warm-season grasses, quality deer management, silvicultural methods designed to improve woodlands for wildlife, wildlife food plots, habitat improvement practices designed to benefit farm-wildlife, and methods to reduce and manage wildlife damage.

Impact:
Over 2,000 people were given information concerning various wildlife management topics during on-site oral presentations at meetings, seminars, short courses, and demonstration sites. Presentations given on television undoubtedly reached more. More than 50 landowners were given personal attention via on-site visits to discuss needs and plans concerning wildlife management, as well as assistance associated with wildlife damage.

More than 10 landowner cooperatives were formed across the state in an effort to manage deer herds under quality deer management guidelines. Over two thousand publications concerning quality deer management were sent out to the public. Appropriate plantings for wildlife food plots were identified from demonstration plots. Approximately 150 students and natural resource professionals learned how to establish and maintain food plots for wildlife from the demonstration plots. Over three thousand landowners were provided publications after requesting information on how to establish and maintain wildlife food plots on their property. Landowners interested in improving habitat for small game converted more than 5000 acres of tall fescue to native warm-season grasses.

Homeowners interested in attracting wildlife around their homes were provided information requested with over two thousand publications were mailed. Over one thousand homeowners were given the information needed to manage damage associated with wildlife around their homes.

Funding Source:
Smith-Lever, State and private grants

Scope:
State Specific
****

Title:
Quality Deer Management Program

Description:
In 1998, a group of dedicated landowners in Benton County, Tenn. formed a Quality Deer Management (QDM) cooperative and asked the UT Agricultural Extension Service for assistance. Extension provided a series of educational meetings and seminars, providing the group the information needed to get started. Since that time, the cooperative has grown from 25 to 39 members and the QDM acreage increased from less than 3000 acres to 5486 acres. This past year marked the group's second year of implementing quality deer management.

Impact:
Harvest data indicates the sex ratio of the herd has improved and the mature buck harvest increased 550%! More complete data will be collected at the conclusion of this hunting season to provide additional information concerning the health of the herd.

Funding Source:
Smith-Lever, State, The Quality Deer Management Association and private landowners.

Scope:
State Specific
****

Title:
Wildlife Habitat, Hunting and Damage Management Planning

Description:
In October 1998, a 200-acre estate in Blount County, Tenn. was suffering severe damage from white-tailed deer. The deer population in that area far exceeded the carrying capacity of the available habitat. As a result, deer were ravaging ornamental flowers and shrubs planted around the property, costing the landowner over $10,000 annually. Virtually no browse remained in the understory of the surrounding forest. After consulting with the UT Agricultural Extension Service, a plan was devised to lower the deer population through regulated hunting and to implement habitat management strategies to provide natural sources of food for the deer.

In 1999, both warm- and cool-season food plots were established on the property. Students and local folks who had been given permission to hunt were involved in planting the plots. In addition, two timber stands were thinned and burned using prescribed fire to enhance understory development and create an abundance of browse.

Impact:
During the hunting season, hunters killed 24 deer from the 200-acre property, effectively reducing the deer population to a point where the browse created through the food plots and thinning and burning sustained the remaining population. Deer damage to the ornamental plantings ceased to exist. As of mid-summer, the landscapers working on the property reported that there had been no damage from deer since the hunting season, yet deer were seen regularly. In late summer of 2000, a deer census was conducted using infrared-triggered cameras. The deer

population on the property was estimated at 20, or a density of 65 deer per square mile—still beyond carrying capacity of the available habitat. A harvest of approximately 6 deer during the coming hunting season will get the population down to a level that is acceptable with the available habitat.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Wildlife and Fisheries 4-H

Description:
The 4-H Wildlife and Fisheries Program was initiated in 1972 and now includes grade-level wildlife and fisheries projects, wildlife habitat judging, and the Food And Cover Establishment (FACE) project, the annual Jr. High Wildlife Conference, and wildlife instruction at 4-H camps. The Tennessee Wildlife Resources Agency sponsors the wildlife and fisheries program. Delivery methods include direct instruction of youth, training of Extension agents and volunteer leaders, and distribution of publications and videos. The Tennessee 4-H program is the largest in the nation. Extension Wildlife and Fisheries personnel expand their efforts in youth education by cooperating with other extension and university personnel, various natural resources agencies, and volunteers. Youth enrolled in the Wildlife and Fisheries Project receive grade-level instruction from grade 5 through 12. Youth are introduced to basic life history information dealing with wildlife and fish. As youth progress through the program, new and more complex material is presented through the workbooks culminating with the 12th grade material on terrestrial and aquatic ecology.

As a result of the success of the Wildlife Judging program in Tennessee, the program was initiated in several other Southern states, and in 1987, the first Southern Regional contest was held. By 1989, the program had spread across the country and the first National 4-H Wildlife Habitat Evaluation Program (WHEP) was conducted. WHEP is an educational program designed to teach youth about the fundamentals of wildlife management, which includes an annual national contest that brings together 4-H wildlife judging teams from across the country who have won similar contests at the state level. The national contest involves several activities that require critical thinking as 4-Hers apply their knowledge in several areas of wildlife ecology and management. Although learning wildlife management concepts is the focus of the National 4-H WHEP, participants also develop skills and leadership capabilities as they meet and interact with other youth and professionals from across the country. This year, the UT Agricultural Extension Service hosted the National 4-H Wildlife Habitat Evaluation Program in Townsend, TN.

Impact:
A total of 15,620 4-H youth participated in the Wildlife Judging Project. These youth learned about plant succession and its effect on wildlife, habitat needs of specific wildlife species, and which management practices are required to provide these conditions. Also, youth were taught how to compare aerial photographs and rank them according to their suitability for specific wildlife species. In addition, youth were taught to recognize wildlife foods and identify which wildlife species eat particular food items. Through this program, youth learn the basic information they need to enter a college level program in wildlife management, manage land they may control in the future, and make informed decisions concerning wildlife and fisheries management.

The Annual Jr. High Wildlife Conference consisted of 4 days of intensive training for 186 junior high-aged 4-H youth and 32 of their adult leaders representing 72 TN counties. Areas of instruction included Wildlife Ecology and Management, Wildlife Management Methods, Managing Wildlife Damage, Backyard Wildlife Management, Ecology of Reptiles and Amphibians, Fish Management, and Forest Management. This year, test scores increased from an average of 52.3% on a pre-test given at the start of the week to 63.2% on an exam given at the end of the conference. This represents a 21% increase in knowledge of wildlife and fisheries ecology and management.

The 4-H FACE (Food and Cover Establishment) plot contest is sponsored each year by the Tennessee Wildlife Resources Agency (TWRA). Each year, TWRA provides seed for planting the plots, personnel to assist in judging plots, and prize money for contest winners. This year, 1,845 4-Hers entered the FACE Contest, of which at least 891 members planted wildlife food plots in 88 of Tennessee's 95 counties. Of those 891, 435 were judged, with the top two in each county receiving awards. Given that one food plot is planted per 15 acres, this program enhanced approximately 13,365 acres of small-game habitat in Tennessee. By participating in this project, over 800 youth gained a better understanding of what wildlife management entails and gained a greater appreciation for wildlife and wild things.

An additional 10,000 youth received instruction on basic information concerning wildlife and fish at summer camps. This information helped these youth become more aware of the other animals and plants they share the earth with, the life history of these plants and animals, and the habitat needs of various wildlife and fish species.

Teams from 24 states (96 4-Hers) participated in the National 4-H Wildlife Habitat Evaluation Program contest. Awards were given to the top three teams, overall individual scores, and individual high scores in the various parts of the contest. In addition to the contest, several events were offered for the 4-Hers who participated, including a field trip to a wildlife management area, a hay ride/spotlighting tour, a program on raptors, a quiz bowl, several guest speakers, and a trip to Dollywood.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

GOAL 5: Enhanced economic opportunity and quality of life for Americans.

Overview

Major program/research areas included under Goal 5 of the Tennessee Agricultural Research and Extension System Plan of Work included: community economic development issues and quality of life issues (personal economic health; workforce preparation; parenting and child care; lifestyle choices, character education and life skills; volunteers; home environmental quality; and home safety). The following describes the projects and programs conducted by the UT Agricultural Experiment Station, the UT Agricultural Extension Service and the TSU Cooperative Extension Program in addressing these areas. More specific information related what was done and what impacts were achieved in each area is included under the Key Theme section.

Community Economic Development Issues:

A major UT Experiment Station emphasis in Goal 5 has been the development of measures of comparative advantage of agricultural-related agribusiness for the state. The purpose is to better direct the state's scarce industrial recruitment resources. Through a cooperative effort with the Tennessee Department of Agriculture, major farm organizations and the University of Tennessee, a comprehensive evaluation of the state's resource and infrastructure base has been undertaken. The output of these efforts has been a prospectus for sectors for which the State has comparative advantages. The result has been in a redirection of state recruitment resources as well as research and extension resources to concentrate on the most likely industrial sub-sectors. New businesses in the focus areas have also been recruited to the State. The impact has been greater levels of agribusiness growth and employment.

Tennessee communities, both rural and urban, are facing significant changes in their economic and social environments. The declining economic impact of agriculture and its associated support industries on local economies has left many communities concerned about issues related to community well-being such as: jobs and family income, adequate workforce for new and existing jobs, and stability of families. TSU Cooperative Extension Program agents in Crockett, Dyer and Shelby counties provided educational programs to address some of these issues.

The TSU Cooperative Extension Program community resources development (CRD) extension specialist conducted a needs assessment to identify communities and individuals that might benefit from CRD educational programs. Over 1400 limited-resource minority farmers and landowners were identified by the TSU CRD Extension specialist to target for educational information regarding farming, community and economic development issues and rights and responsibilities of landownership. Landownership fact sheets are being developed.

The governments of Scott County Tennessee and McCreary County Kentucky and the Extension Community Resource Development Committees in each county joined forces in 1994 to prepare an application for a $40 million dollar Empowerment Zone application entitled SMART

(Scott/McCreary Area Revitalization Team). The SMART plan was designated as an Enterprise Community in 1995 and awarded $2.95 million to be split between the two counties on a percentage based on poverty in each county. With assistance from Extension community development personnel, the plan is benchmarked with semi-annually and as of August 2000 Scott County has leveraged $107 dollars in grants and loans for every dollar that was received in the EC Designation plus $2 million dollars in an Intermediary Relending fund for low interest loans for small business improvements or start-ups. McCreary County has had similar results.

Quality of Life Issues:

Personal and Economic Health

The TSU Extension agent in Crockett County planned and conducted six financial management lessons with six young families in a local housing unit. The program was delivered through small group instruction to help each individual personally understand the contents. The young families were able to open and maintain current checking accounts with local banks. A quarterly evaluation was conducted to see if standards are still being met with the clients on their checking account. Participants are still meeting standards.

In Lauderdale County, the Extension Parenting and Consumer Education (PACE) team conducted a group needs assessment session in cooperation with the Department of Health personnel. Information was used to develop curriculum for parenting and financial management. Two 20-hour curricula were developed in parenting (*Kids Smart*) and financial management (*Money Wise*) as a result of this needs assessment. 264 Families First facilitators and Department of Human Services(DHS) personnel were trained by Extension educators, 75 percent of those trained facilitators have implemented the curricula and adopted new facilitating and teaching methods in preparing a family spending plan, setting money goals, stretching food dollars, buying a used car, guidance and discipline for children, child's developmental and growth patterns, setting limits, ground rules, time management, parenting styles, learning to listen, check cashing stores, fraud and rip offs.

The UT Extension Service is partnering with local banks to provide limited resource clientele with six hours of basic financial management training. Workshop session topics include such titles as: Talking about money; Stretching your money; Developing money goals; and Developing a spending plan. To date, three banks have partnered in this program and five counties: Gibson, Henderson, Giles, Lincoln, and Hancock have participated in the program. Participating banks offered workshop attendees special free checking accounts with no minimum balance requirements for a period of two years. Eighty-five participants have successfully graduated from the program and approximately 50 have already opened special no-fee/no-minimum balance savings and checking accounts. One single-parent, welfare-recipient participant, after attending the first day of the workshop, returned the next day to open his savings and checking accounts with $500. Prior to opening his account, he actually kept it in a sock at his home. Another participant decided to stop giving her son dessert every night. When asked the reason for her actions, she said, "It's too expensive and it's not healthy for him

anyway." Several participants now have a much less skeptical view of banks and the services they offer. Some have started using their shopping lists and have found that they are more efficient in handling their food spending budget.

The Tennessee Department of Human Services (TDHS) entered into a $462,000 contract with The University of Tennessee's Extension Family and Consumer Sciences Department to develop curricula and training for Families First Facilitators in the areas of parenting and financial management. A Parenting and Consumer Education (PACE) team was assembled. Twenty hours of curriculum in each area were developed by specialists with input from facilitators, DHS personnel, and selected reviewers. Seven two-day training sessions were conducted across the state with 264 facilitators trained. Two follow-up training sessions were conducted for a total of approximately 175 facilitators each session. A certification process was developed to encourage facilitators to attend training and to implement the program. In evaluations of the training sessions, 97% of facilitators rated the trainers and the curricula as good or excellent, and 98% rated the overall training experience as good or excellent. Approximately 75% of trained facilitators have implemented the PACE program to some degree. TDHS has made Families First participants who complete 80 hours of PACE training eligible for a $100 completion bonus.

Working with one-time funding from a 1998 grant, six counties in West Tennessee developed a model two-year program "Broken Promises," which involved training local volunteer counselors (e.g., bankers, ministers, and others) to coach bankrupt families in sound financial management practices. A spin-off project of the original 'Broken Promises' program was DEBTS, a bankruptcy simulation activity used to educate counselors, coaches, and prospective filers about the bankruptcy process. With pending federal bankruptcy legislation requiring more filer education, a number of other organizations over the nation have shown interest in purchasing the DEBTS simulation materials. West Tennessee families who continue to participate in bankruptcy and financial education classes have improved their collective savings/debt ratio by more than a million dollars. Families who have participated in the two year program have averaged increases in savings of over $1200, and debt reduction of over $2200.

"Mad About Clothes" is an Extension-developed curriculum to teach youth financial and consumer skills through their interest in clothing. The purpose of the curriculum is to teach skills in planning, decision making, comparison shopping and resource management. An important part of the curriculum is "Mall Mania." "Mall Mania" is a series of structured learning activities which take place in a retail environment. The University of Tennessee has partnered with local schools, volunteer leaders, and retail partners to teach Mad About Clothes. In-school 4-H lessons, special interest school series, summer camps and partnerships with retail partners have all taken place to teach Mad About Clothes. Tennessee youth who participated in "Mad About Clothes" and "Mall Mania" improved their financial and consumer skills. The Mall Mania series was submitted by one of the retail program partners to the International Council of Shopping Centers for consideration for the Maxie Award as a program of excellence. Mall Mania received recognition as a top ten finalist for the award.

Workforce Preparation

"Learning A Living 2000" was an intensive Extension-conducted summer camp focused specifically on workforce preparedness for youth in Knox and Blount counties. Forty youth, whom who had never been involved in 4-H programs, were identified to participate in the experience. "4-H Directions: Career Exploration Conference, Preparing Youth for the 21st Century Workplace" was a conference conducted by Extension for the third time in 2000 for youth in West Tennessee. The event promoted career exploration through hands-on learning experiences as youth worked to build personal and interview skills and general workplace competencies. "Digging Up Dirt on Careers" was designed as a new career awareness effort with sixth grade 4-H members and has been supplemented by resources for agents to use as they work with career education 4-H programs. A variety of programs and simulation activities were used in other counties to help youth learn about the importance of job skills and career choices. Youth increased their knowledge about communication skills, manners, politeness, telephone manners, parliamentary procedure, managing time, identifying career interest, skills and attitudes needed in the workplace, making career choices, making wise financial choices, budgeting your money and the importance of staying in school and receiving a good education

Parenting and Child Care

In the 2000 program year, approximately 20,000 persons received parenting information from 60 Extension FCS agents across the State of Tennessee. The majority of these programs were at no cost to the participants. Extension agents have reported on the following programs: Parent Education for Low Income Participants, Parent Education for expectant parents, new mothers, and/or teen parents, Anticipating Baby course, Healthy Children Ready to Learn: Parent Education Curriculum, and Court-Ordered parenting. Based on program evaluations, participants showed increased knowledge and use of positive parenting skills as assessed through post-tests, 26 new mothers have requested additional parenting information through the Extension Service, in one county, 100 % of teen mothers returned to school after the birth of their babies, and the teen pregnancy ranking dropped from first in the state to 12th in the state with no reported pregnancies in the junior high for 2 years, 90 % of participants in one county indicated they are using skills they learned in the parenting classes, one mother who was ordered to attend classes reported to the judge that she thought all parents should take classes and showed the workbook she completed in class.

Seven volunteer staff members of the Davidson County Sheriff's Office were trained at the sheriff's office by the TSU Cooperative Extension family life specialist to conduct pilot-training with the male population in the areas of nutrition, consumer education and parenting. In 1999-2000 a total of 42 male inmates participated in this training. The participants demonstrated that they acquired knowledge of food purchasing, preparation, and eating habits. The participants also learned the value of utilizing positive parenting skills with alternatives to spanking and yelling at their children. They indicated in their evaluations that they learned the importance of effective communication with children and the importance of building parent-child relations. Feedback from the Sheriff's Office indicate they wish to continue this program.

In Lauderdale County, parenting education programs were taught bi-weekly to 10 parents of juvenile delinquent children. The *Baby Think It Over* curriculum with infant simulator was used in junior and senior high school health, family and consumer sciences, and child development classes with 100 teen girls were enrolled in these classes. A s a result of the Strengthening Families programs, 100 percent of teen mothers returned to school. The teen pregnancy rate dropped from number one in the state to number twelve. Pregnancy prevention classes are being taught in schools. There have been no known pregnancies reported in junior high school for the last two years. Mothers/guardians of teens cooperate to help teachers implement the use of *Baby Think It Over* curriculum.

Lifestyle Choices, Character Education and Life Skills

In Crockett County, an after-school tutorial program met two days a week for 1.5 hours a day, for one month. Participants focused on areas in math, reading and English, which helped them to better prepare for standardized tests that are given each year. The tutoring sessions took place at the County Extension Office. The TSU Extension agent was responsible for assisting students in the areas of math, English and reading. One-on-one teaching was conducted for each student who participated.

A leadership development course was provided by the TSU Extension Program for 10 youth in Crockett County. These classes met once a month and focused on the following topics: county government, agricultural industry, and health and wellness. Participants toured five different sites in the county, as well as local businesses, to learn about community and economic development issues in the region. The TSU Extension leadership course offered to youth in Crockett County provided students hands-on educational sessions to help educate 10 eighth grade students. In Dyer County, several dozen students learned how to become good leaders and citizens, as well as to improve their self-esteem and self-confidence by speaking in front of the county officials, businessmen and women, as well as their peers.

An emphasis on youth leadership has been established as a priority program for Tennessee 4-H programs. Agents have been encouraged to provide leadership training and leadership opportunities for teens. Guidelines have been shared for the organization of 4-H Sigma Lambda Chi chapters to focus on leadership and service learning. Twelve counties reported the organization of a 4-H Sigma Lambda Chi chapter with increases in senior membership and more opportunities for leadership and service. Teens have been given additional opportunities to serve in leadership roles. In one county, 4-H club officers reported a fifty percent increase in leadership skills gained after training provided by teens. Twenty six teens in a West Tennessee county increased their leadership skills by leading TNCEP (Tennessee Nutrition and Consumer Education Program) activities for over 500 youth. In a county where teens were given the opportunity to work with younger 4-H'ers, teen enrollment increased by more than 400 percent. One East Tennessee county identified and trained teen leaders to work with 25 different 4-H clubs. The teens conducted six meetings with each of the clubs in 2000. Three counties have started in depth leadership training programs.

To equip Extension faculty to facilitate change in affective, cognitive and psychomotor domains of character development, The University of Tennessee 4-H program partnered with The Josephson Institute of Ethics to conduct two intensive, simultaneous 36-person Character Counts! Trainer Certification Seminars followed by a tow and one half day Invitational Character Education Conference for parents, teachers and community leaders. Participants have reported community coalition formation, inservice training for teachers, organization of task forces, parent training, teen training, new audience involvement (pregnant teens, prison women, grandparents, judicial referrals), camps and retreats, sports training and community wide training. The greatest impact to date is the formation of numerous community coalitions to develop and conduct character education programs in the counties, with Extension serving in a leadership role in the coalitions' formation, and the increased awareness of the need for character education.

Currently, youth ages 5-8 are not afforded an opportunity to participate in the Tennessee 4-H Youth Development Program. Since Spring of 1999, the Cloverbud curriculum training was provided to volunteer leaders, extension agents and program assistants in six pilot counties. The areas presented were: agriculture, personal development, and food and nutrition. The Cloverbud curriculum was peer-reviewed during summer 2000 by five reviewers nationwide. The Cloverbud curriculum also continues to be used with the Tennessee State University's Tennessee Valley Authority(TVA) Weekend Academy Programs in three counties. These counties also have recommended that an introductory brochure be developed to market the Cloverbud program to underserved communities. Evaluation of the Cloverbud 4-H program revealed that the 285 youth participants gained 75% to 95% improvement in their socialization, emotional and cognitive skills. One county reported that the youth participants improved their physical, cognitive, emotional, and socialization skills in science between 90 percent and 100 percent. An overall composite of the counties surveyed revealed that through their observation of youth participating in the program, more than half of the youth have improved their team participation skills and have shown a greater improvement in their willingness to share with other members of the group.

In Henderson County five news articles were written to stress building character in the community. Six pillars of character (respect, responsibility, trustworthiness, fairness, citizenship, and caring) were taught in summer day camps at seven sites in the county. Eighty-two youth were involved. Thirty after-school youth learned character through hands-on activities at two housing project sites. Fifteen day-care providers participated in a Character Counts training to use in their centers. Statewide, 12,500 youth participated in various youth development activities as a result of TSU Cooperative Extension programming. A survey of 90 children who participated in character building activities showed that 27 children learned character skills and had made a commitment to themselves that they would not cheat on exams. A survey of 11 parents of youth who participated in summer day camp, showed that 11 children learned some character skills. In other counties, 468 youth, enrolled in after-school activities and summer day camps learned about character skills through hands-on activities. Eighteen day care providers learned methods they could use to teach character in children. Twelve participants in a youth

exchange with seniors activity learned to respect each other and to be responsible for their partners.

Volunteers

The TSU Extension agent in Shelby County developed a marketing brochure and made TV appearances to market the Memphis Urban Garden Program. Presentations were made to Memphis City Beautiful Commission to replace empty vacant city lots with community vegetable gardens. The City of Memphis provided $41,000 to support the urban gardening program. Forty-two volunteers, including a 24 member advisory committee assist in the leadership and implementation of the MUGP. Quarterly Extension educational meetings are conducted in the areas of vegetable production and nutrition. Educational events and activities were planned to keep participants interested and trained. TSU Extension agents in Rutherford, Lawrence, Franklin and Dyer counties provided training for several dozen volunteer Master Gardeners who work with the MUGP.. In 1999-2000, 1,250 participants were enrolled in MUGP. Fifty volunteer leaders assist with planning and implementing MUGP. Because the majority of gardeners are over 65 years of age, the Extension agent believes that eating fresh fruits and vegetables from their gardens and exercise contribute to their longevity. Seventy-five gardeners participated in a leadership development program. Fifty gardeners participated in educational meetings related to nutrition and production of fruits and vegetables. Seventy gardeners participated in the vegetable garden judging contest. Over 200 gardeners exhibited fresh fruits and vegetables in the fresh fruit and vegetable canning contest. One-half million dollars is saved by gardeners in food costs as a result of the Memphis Urban Garden Program.

The TSU Home Horticulture Programming also offered several educational workshops throughout the state. Home Garden demonstrations were conducted in seven counties. The Master Gardener training program was also offered in four counties and trained 85 volunteers.

TSU-trained Master Gardener volunteers contributed 2,550 hours of volunteer time by providing educational information, materials or programs in their communities.

The 4-H program has established standards for the use of volunteers to conduct 4-H camp programs. Each county taking a delegation to camp must have one volunteer for each eight campers. Volunteers received a minimum of six hours of training before participating in the camping experience. Volunteers were given assignments that included responsibilities for campers' health, safety and education during camp programs. In the 2000 4-H camping season, 1,600 volunteers contributed a total of 115,200 hours of training and serving in volunteer roles at camp. At a modest rate of $10 per hour, volunteer service to The University of Tennessee 4-H camping program would be valued at $1,152,000. Without the service of volunteers, it is estimated camp fees would double.

The Tennessee Master Gardener Program expanded from 23 to 27 separate sites. Eleven hundred trainees were enrolled and trained and several counties have waiting lists to participate. Participants in local Master Gardener associations continued to increase and participants

provided in excess of 45,000 hours of volunteer service to Extension and Tennessee communities this year. At $10 an hour this volunteer service has an estimated value of $450,000.

Allocations for Goal 5 Projects and Activities:

UT 1862 Research:
- Hatch - $186,621
- Multistate - $42,165
- Animal Health - $1,884
- McIntire-Stennis - $25,029
- State Outlays - $1,080639

UT 1862 Extension:
- Smith-Lever b and c - $2,440,364
- Smith-Lever d - $13,770
- State and County Allocations - $8,644,545

TSU 1890 Extension:
- Smith-Lever b and c - $945,000
- County Allocations - $105,000

FTE's for Goal 5:

UT 1862 Research - 4.5

UT 1862 Extension - 200.6

TSU 1890 Extension - 21.0

****

KEY THEME - COMMUNITY DEVELOPMENT

Title:
Analysis of economic impacts of and opportunities for Tennessee agri-industry development

Description:
Prospectus for six different industries have been developed with our assistance. Industry briefs on tobacco, nursery and landscaping, furniture, farm sector indicators, and wood processing have been developed for various clients within the State. A study was conducted for an Empowerment Zone on opportunities for further developing a wood processing industry. Developed106 a wood transportation and location model (WTRANS). Conducted studies on wood residue availability and price within the State. Initiated impact of logging industry in

State.

Impact:
The project has resulted in increased information to wood products industries looking to locate in the State. The Tennessee Department of Agriculture has requested information on wood residue location and value along with information on the importance of the tobacco industry on the State's economy. Development of analytical system allows us to provide information in a timely fashion. For instance, information generated in December is currently being used by the State's administration in developing a rational for the use of Phase l tobacco monies.

Funding Source:
Hatch and State

Scope:
Integrated Research and Extension
****

Title:
Limited-Resource Community Development/Landownership Program

Description:
Two community development regional conferences were held to address the needs of identified communities.

The TSU Extension Program CRD Extension specialist also identified several hundred limited resource, minority farmers and landowners in 22 counties in Tennessee to provide critically needed educational information including the topic of the rights and responsibilities of landownership.

Impact:
Over 1400 limited-resource minority farmers and landowners were identified by the TSU CRD Extension specialist to target for educational information regarding farming, community and economic development issues and rights and responsibilities of landownership. Landownership fact sheets are being developed.

Funding Source:
Smith-Lever

Scope:
State Specific
****

Title:
Multi-state Community Resource Development

Description:
Scott County, Tennessee and McCreary County, Kentucky are located in the more rugged and scenic areas of the Cumberland Plateau. The area of these counties is largely forested and comprised of the rugged terrain of the gorge of the Big South Fork of the Cumberland River. According to the 1990 census, 51% of Scott County population age 25 and older had not graduated high school, and only 4% graduated college. The census also indicated that 38% of Scott County residents were living below the poverty line and 33% were recipients of food stamps.

The governments of Scott County Tennessee and McCreary County Kentucky and the Community Resources Development Committees in each county joined forces in 1994 to prepare an application for a $40 million dollar Empowerment Zone application. Committees were set up in each county to establish the needs and wants of the area. Over 20 citizens committee meetings involving over 1100 participants were held to develop the needs and wants. These needs and wants were refined into a strategic plan which would eventually become the Empowerment Zone Application entitled SMART (Scott/McCreary Area Revitalization Team).

Impact:
The SMART plan was designated as an Enterprise Community in 1995 and awarded $2.95 million to be split between the two counties on a percentage based on poverty in each county. There was a $40 million dollar strategic plan and only $2.95 million dollars to implement it. We soon realized that the strategic plan is the key to success because any grant or loan that can be based back to the strategic plan will receive a number 1 priority and stands an excellent chance of being funded. The plan is benchmarked semi-annually and as of August 2000 Scott County has leveraged $107 dollars in grants and loans for every dollar that was received in the EC Designation plus $2 million dollars in an Intermediary Relending fund for low interest loans for small business improvements or start-ups. McCreary County has had similar results.

Funding Source:
Smith-Lever, State and local governments

Scope:
Multi-State Extension (TN and KY)
****

KEY THEME - YOUTH DEVELOPMENT/4-H

Title:
After-School Tutoring Program

Description:
In Crockett County, an after-school tutorial program met two days a week for 1.5 hours a day, for one month. Participants focused on areas in math, reading and English, which helped them to better prepare for standardized tests that are given each year. The tutoring sessions took place at

the County Extension Office. The TSU Extension agent was responsible for assisting students in the areas of math, English and reading. One-on-one teaching was conducted for each student who participated.

Funding Source:
Smith-Lever

Scope:
State Specific
****

Title:
4-H Cloverbuds Program

Description:
Currently, youth ages 5-8 are not afforded an opportunity to participate in the Tennessee 4-H Youth Development Program which involves young people, ages 9-19. Extension agents and volunteers alike have all been supporters of expanding the 4-H program to include youth, ages 5-8. Several counties have, in fact, adapted programs from other states to satisfy this void in the Tennessee 4-H Youth Development program. Since Spring of 1999, the Cloverbud curriculum training was provided to volunteer leaders, extension agents and program assistants in the following pilot counties: Knox, Blount, Davidson, Hamilton, Henderson and Rhea. The counties offered the pre 4-H Cloverbud program to youth, ages 5-8 during Spring 1999 - Summer 2000. The areas presented were: agriculture, personal development, and food and nutrition. The Cloverbud curriculum was peer-reviewed during summer 2000 by five reviewers nationwide. All reviewers have recommended that the curriculum be printed as is, or with minor corrections. Statewide release of the Cloverbud curriculum began in Fall 2000 through individual county training workshops and statewide in-service training to all districts beginning in Summer 2001. The Cloverbud curriculum continues to be used with the Tennessee State University's Tennessee Valley Authority(TVA) Weekend Academy Programs in Davidson, Hamilton and Knox counties. These counties also have recommended that an introductory brochure be developed to market the Cloverbud program to underserved communities.

Impact:
Impacts of the Cloverbud 4-H program were obtained from a written survey designed to measure the behavioral change of young children (age 5-8 years) over the period of participation in the program. Six pilot counties utilized the Cloverbud curriculum and returned the surveys. The surveys revealed that more than 285 youth, ages 5-8, participated in the program. Counties also reported that participants gained 75% to 95% improvement in their socialization, emotional and cognitive skills.

In Knox County, the Cloverbud program was offered primarily to home schoolers where more than 50 youth completed the entire Cloverbud Agriculture Activity Guide.
In Knox County this group also has begun using the Cloverbud Personal Development Activity

Guide. Rhea County reported that the youth participants improved their physical, cognitive, emotional, and socialization skills in science between 90 percent and 100 percent. Rhea County recommends additional activities in the area of science for teen mentors to use with younger youth. An overall composite of the counties surveyed revealed that through their observation of youth participating in the program, more than half of the youth have improved their team participation skills and have shown a greater improvement in their willingness to share with other members of the group.

Funding Source:
Smith-Lever and County

Scope:
State Specific
****

KEY THEME - LEADERSHIP TRAINING AND DEVELOPMENT/VOLUNTEERS

Title:
TSU Extension Youth Leadership Program

Description:
A leadership development course was provided by the TSU Extension Program for 10 youth in Crockett County. These classes met once a month and focused on the following topics: county government, agricultural industry, and health and wellness. Participants toured five different sites in the county, as well as local businesses, to learn about community and economic development issues in the region.

Impact:
The TSU Extension leadership course offered to youth in Crockett County provided students hands-on educational sessions to help educate 10 eighth grade students. In Dyer County, several dozen students learned how to become good leaders and citizens, as well as to improve their self-esteem and self-confidence by speaking in front of the county officials, businessmen and women, as well as their peers.

Funding Source:
Smith-Lever

Scope:
State Specific
****

Title:
Youth leadership development

Description:
An emphasis on youth leadership has been established as a priority program for Tennessee 4-H programs. Agents have been encouraged to provide leadership training and leadership opportunities for teens. Guidelines have been shared for the organization of 4-H Sigma Lambda Chi chapters to focus on leadership and service. Twenty seven counties have identified youth leadership development as a priority area for 4-H programming. Twelve counties reported the organization of a 4-H Sigma Lambda Chi chapter with increases in senior membership and more opportunities for leadership and service . Teens have been given additional opportunities to serve in leadership roles.

Impact:
- In one county, 4-H club officers reported a fifty percent increase in leadership skills gained after training provided by teens.
- Twenty six teens in a West Tennessee county increased their leadership skills by leading TNCEP (Tennessee Nutrition and Consumer Education Program) activities for over 500 youth.
- In a county where teens were given the opportunity to work with younger 4-H'ers, teen enrollment increased by more than 400 percent.
- One East Tennessee county identified and trained teen leaders to work with 25 different 4-H clubs. The teens conducted six meetings with each of the clubs in 2000.
- Three counties have started in depth leadership training programs.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Urban Gardening Program Volunteers

Description:
The Shelby County Extension program advisory committee recommended continued participation in the Memphis Urban Garden Program (MUGP). The extension agent developed a MUGP marketing brochure and made TV appearances to market the Urban Garden program. Presentations were made to Memphis City Beautiful Commission to replace empty vacant city lots with community vegetable gardens. The City of Memphis provides $41,000 annually to support the urban gardening program in Memphis. Forty-two volunteers, including a 24 member advisory committee assist in the leadership and implementation of the MUGP. Quarterly educational meetings are conducted in the areas of vegetable production and nutrition. Visits were made to City of Memphis Housing and Community Development office, which sponsors MUGP funds on a regular basis. Educational events and activities were planned to keep participants interested and trained. TSU Extension agents in Rutherford, Lawrence, Franklin and

Dyer counties provided training for several dozen volunteer Master Gardeners who work with the MUGP..

The Home Horticulture Programming Team composed of TSU county extension agents and the home horticulture extension specialist offered several educational workshops throughout the state. Home Garden demonstrations were conducted in Davidson, Franklin , Shelby, Hardeman, Lawrence, Rutherford and Dyer counties. The Master Gardener training program was offered in Franklin, Dyer, Lawrence and Rutherford counties and trained 85 volunteers.

Impact:
The City of Memphis continued to provide funding ($41,000) to support the Urban Garden Program. In 1999-2000, 1,250 participants were enrolled in MUGP. Fifty volunteer leaders assist with planning and implementing MUGP. Because the majority of gardeners are over 65 years of age, the Extension agent believes that eating fresh fruits and vegetables from their gardens and exercise contribute to their longevity. Seventy-five gardeners participated in a leadership development program. Fifty gardeners participated in educational meetings related to nutrition and production of fruits and vegetables. Seventy gardeners participated in the vegetable garden judging contest. Over 200 gardeners exhibited fresh fruits and vegetables in the fresh fruit and vegetable canning contest. One-half million dollars is saved by gardeners in food costs as a result of the Memphis Urban Garden Program.

Master Gardener volunteers contributed 2,550 hours of volunteer time by providing educational information, materials or programs in their communities.

Funding Source:
Smith-Lever, Counties and City of Memphis

Scope:
State Specific
****

Title:
Volunteer Involvement in 4-H Camping Programs

Description:
The Tennessee 4-H camping program serves over 12,500 youth each summer. It is impossible to employ camp staff to adequately supervise, conduct programs and meet the needs of each camper, and keep camp fees at a level that is affordable for the majority of Tennessee families.

The 4-H program has established standards for the use of volunteers to conduct 4-H camp programs. Each county taking a delegation to camp must have one volunteer for each eight campers. Volunteers received a minimum of six hours of training before participating in the camping experience. Volunteers were given assignments that included responsibilities for campers' health, safety and education during camp programs.

Impact:
In the 2000 4-H camping season, 1,600 volunteers contributed a total of 115,200 hours of training and serving in volunteer roles at camp. At a modest rate of $10 per hour, volunteer service to The University of Tennessee 4-H camping program would be valued at $1,152,000.

Without the service of volunteers, it is estimated camp fees would double; camp attendance would decrease dramatically; and many Tennessee volunteers would not be involved in Extension programs.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

KEY THEME - CHARACTER/ETHICS EDUCATION

Title:
Character Education Trainer Certification

Description:
To equip Extension faculty to facilitate change in affective, cognitive and psychomotor domains of character development, The University of Tennessee 4-H program partnered with The Josephson Institute of Ethics to conduct two intensive, simultaneous 36-person Character Counts! Trainer Certification Seminars followed by a tow and one half day Invitational Character Education Conference for parents, teachers and community leaders.

Impact:
Participants have reported community coalition formation, inservice training for teachers, organization of task forces, parent training, teen training, new audience involvement (pregnant teens, prison women, grandparents, judicial referrals), camps and retreats, sports training and community wide training. The greatest impact to date is the formation of numerous community coalitions to develop and conduct character education programs in the counties, with Extension serving in a leadership role in the coalitions' formation, and the increased awareness of the need for character education. Continued emphasis and follow-up with participants will result in more specific impacts as coalitions do their work.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
Character Education

Description:
In Henderson County five news articles were written to stress building character in the community. Six pillars of character (respect, responsibility, trustworthiness, fairness, citizenship, and caring) were taught in summer day camps at seven sites in the county. Eighty-two youth were involved. Thirty after-school youth learned character through hands-on activities at two housing project sites. Fifteen day-care providers participated in a Character Counts training to use in their centers. Statewide, 12,500 youth participated in various youth development activities as a result of TSU Cooperative Extension programming.

Impact:
In Henderson County, a survey of 90 children who participated in character building activities showed that 27 children learned character skills and had made a commitment to themselves that they would not cheat on exams. A survey of 11 parents of youth who participated in summer day camp, showed that 11 children learned some character skills. In other counties, 468 youth, enrolled in after-school activities and summer day camps learned about character skills through hands-on activities. Eighteen day care providers learned methods they could use to teach character in children. Twelve participants in a youth exchange with seniors activity learned to respect each other and to be responsible for their partners.

Funding Source:
Smith-Lever

Scope:
State Specific
****

KEY THEME - PARENTING

Title:
Parenting Successfully

Description:
Parent education has been recognized as a need by a variety of persons and institutions working with parents including schools, churches, the Department of Children's Services (DCS), and Juvenile Justice among others. Officials from DCS and juvenile courts often refer parents to parent education programs as a part of a plan for parents to keep their children, regain their children who have been removed, or to keep their children out of detention. Other agencies that serve children and families are offering parent education in an effort to be proactive.

In the 2000 program year, approximately 20,000 persons received parenting information from 60 Extension FCS agents across the State of Tennessee. The majority of these programs were at no

cost to the participants. Extension agents have reported on the following programs:

Parent Education for Low Income Participants - Grundy County - 40 classes, averaging 13.5 participants, individual teaching - 55 sessions; Hancock County - Weekly classes of 1 to 2 hours with Families First GED participants averaging 8 persons per session; Decatur County - 3 8-session parenting classes for School Resource and Families First participants reaching 30 parents.

Parent Education for expectant parents, new mothers, and/or teen parents - Johnson County - Anticipating Baby course, two 8-part sessions, 18 parents completed course, 48 low income mothers participated in a county-wide baby shower, 22 teens received parent education information and equipment for the child care center for their children; McNairy County - series of 5 parenting lessons to 16 young mothers from Healthy Children Ready to Learn: Parent Education Curriculum; Fayette County - taught baby care workshops to 34 expectant mothers, taught series of 5 parenting classes to 64 expectant parents, sent Healthy Children Ready to Learn newsletters to 213 parents.

Anderson County - distributed Healthy Children Ready to Learn newsletters to 1,024 mothers through partnership with Children's Advocacy Network, parenting and child development information presented to 58 teen mothers and 17 Head Start parents.

Court-Ordered parenting - Lauderdale County - 5 classes with 10 parents of children who are juvenile delinquents, parent education classes taught to 100 teen mothers through home visits; Blount County thirteen 4 and 6 week parenting courses and one-on-one sessions were taught to court-ordered families and to teen mothers totaling 255 parents participating.

Other Parenting Programs - Knox County - 3 parent education programs through school groups, 2 programs to Urban League, and 1 program to foster parents group; Grundy County - development of a Parenting Resource Center.

Impact:

a. Participants showed increased knowledge and use of positive parenting skills as assessed through post-tests (five counties reporting),
b. 26 new mothers have requested additional parenting information through the Extension Service,
c. a representative of a county agency working with low income parents stated that "through the fine work being done by the Extension office, the participants in the parenting education program have become more self-sufficient, more positive, and are productive citizens in the community",
d. in one county, 100 % of teen mothers returned to school after the birth of their babies, and the teen pregnancy ranking dropped from first in the state to 12th in the state with no reported pregnancies in the junior high for 2 years
e. 90 % of participants in one county indicated they are using skills they learned in the parenting classes,

f. one mother who was ordered to attend classes reported to the judge that she thought all parents should take classes and showed the workbook she completed in class,
g. parents in another class made the following comments; "I read to my children now" (did not read to them before training), "Now I talk to my children. Lately, I don't get angry," "One of my skills would be that I know a child gets angry, hurt and depressed just like mom," " Don't take my stress out on my children."

Funding Source:
Smith-Lever, State, State Strengthening Grant, class fees, program partners, and a Tennessee State University Creative Enhancement Grant.

Scope:
State Specific
****

Title:
Parenting, Consumer and Nutrition Education for Inmates

Description:
Seven volunteer staff members of the Davidson County Sheriff's Office were trained at the sheriff's office by the TSU Cooperative Extension family life specialist to conduct pilot-training with the male population in the areas of nutrition, consumer education and parenting. Classes began in June 2000 for six weeks. Subsequent classes have been conducted every six weeks (two at a time). Each class had 12-14 participants in attendance. In 1999-2000 a total of 42 male inmates participated in this training.

Impact:
Forty- two Davidson County male inmates participated in the program. Pre- and post-tests were given to measure change in knowledge of nutrition, consumer awareness, and effective parenting. The participants demonstrated that they acquired knowledge of food purchasing, preparation, and eating habits. The participants also learned the value of utilizing positive parenting skills with alternatives to spanking and yelling at their children. They indicated in their evaluations that they learned the importance of effective communication with children and the importance of building parent-child relations. Feedback from the Sheriff's Office indicate they wish to continue this program. The Extension specialist will also provide training and encourage adoption of this program in other counties.

Funding Source:
Smith-Lever

Scope:
State Specific
****

Title:
Parenting Education for Parents of Juvenile Delinquents

Description:
In Lauderdale County, parenting education programs were taught bi-weekly to parents of juvenile delinquent children - five classes with 10 parents. The *Baby Think It Over* curriculum with infant simulator was used in junior and senior high school health, family and consumer sciences, and child development classes - 100 teen girls were enrolled in these classes. Follow-up consisted of Resource Mother Group weekly home visits.

Impact:
In Lauderdale County, as a result of the Strengthening Families programs, 100 percent of teen mothers returned to school (reduced drop-out rate). The teen pregnancy rate was reduced from number one in the state to number twelve. Pregnancy prevention classes are being taught in schools. There have been no known pregnancies reported in junior high school for the last two years. Mothers/guardians of teens cooperate to help teachers implement the use of *Baby Think It Over* curriculum.

Funding Source:
Smith-Lever

Scope:
State Specific
****

KEY THEME - FAMILY RESOURCE MANAGEMENT/CONSUMER MANAGEMENT

Title:
TSU Extension Program Financial Management/Consumer Education

Description:
The TSU Extension agent in Crockett County planned and conducted six financial management lessons with six young families in a local housing unit. Two weeks focused on stretching the food dollars, two weeks on budgeting, and two weeks on checking account procedures. The program was delivered through small group instruction to help each individual personally understand the contents. Agents were on sight to provide assistance with clients, as bankers explained the process.

In Lauderdale County, the Parenting and Consumer Education (PACE) team conducted a group needs assessment session in cooperation with the Department of Health personnel. Information was used to develop curriculum for parenting and financial management. Two 20 hour curricula were developed in parenting (*Kids Smart*) and financial management (*Money Wise*) as a result of this need assessment.

Impact:
During 1999-2000, six young families in Crockett County were able to open and maintain current checking accounts with local banks. A quarterly evaluation was conducted to see if standards are still being met with the clients on their checking account. Participants are still meeting standards. Participants also used weekly coupons, and were alert of weekly sales at their local grocery store. The six families learned the importance of monthly shopping versus weekly shopping, and how much could actually be saved with coupons if used before the expiration date.

In Lauderdale County, 264 Families First facilitators and Department of Human Services(DHS) personnel were trained by Extension educators, 75 percent of those trained facilitators have implemented the curricula and adopted new facilitating and teaching methods in preparing a family spending plan, setting money goals, stretching food dollars, buying a used car, guidance and discipline for children, child's developmental and growth patterns, setting limits, ground rules, time management, parenting styles, learning to listen, check cashing stores, fraud and rip offs.

Funding Source:
Smith-Lever ans State

Scope:
State Specific
****

Title:
Bank/UT Extension Financial Management Partnership Program

Description:
Tennessee ranks extremely high in bankruptcy rates. The potential is there for a new wave of bankruptcies within the next few year unless significant efforts are made to provide our limited resource population with training in basic financial management skills. The UT Extension Service is partnering with local banks to provide our limited resource population with six hours of basic financial management training. Workshop session topics include such titles as: Talking about money; Stretching your money; Developing money goals; and Developing a spending plan. To date, three banks have partnered in this program and five counties; Gibson, Henderson, Giles, Lincoln, and Hancock have participated in the program. Participating banks offered workshop attendees special free checking accounts with no minimum balance requirements for a period of two years.

Impact:
Eighty-five participants have successfully graduated from the program and approximately 50 have already opened special no-fee/no-minimum balance savings and checking accounts. One single-parent, welfare-recipient participant, after attending the first day of the workshop, returned the next day to open his savings and checking accounts with $500. Prior to opening his account, he actually kept it in a sock at his home. Another participant decided to stop giving her

son dessert every night. When asked the reason for her actions, she said, “It’s too expensive and it’s not healthy for him anyway.”

Extension agents reported positive responses from workshop participants. Several participants now have a much less skeptical view of banks and the services they offer. Many participants expressed appreciation for the numerous handouts they received during the workshops. Some have started using their shopping lists and have found in doing so that they are more efficient in handling their food spending budget.

Funding Source:
Smith-Lever, State and support from Local Banks

Scope:
State Specific
****

Title:
Extension Parenting and Consumer Education Program (PACE)

Description:
Families First, Tennessee's Welfare to Work program, has been in operation since 1996. Those persons who have not made the transition from Welfare to Work during that period are those who face multiple barriers to finding and maintaining employment. Because persons are limited to 5 years of benefits during their lifetime, it is imperative that ways be found to overcome the barriers that hinder employment for these persons. The Tennessee Department of Human Services (TDHS) personnel recognize that employability and productivity are directly related to financial and family well-being.

The TDHS entered into a $462,000 contract with The University of Tennessee’s Extension Family and Consumer Sciences Department to develop curricula and training for Families First Facilitators in the areas of parenting and financial management. A PACE team consisting of five specialists and five county staff were assembled. Sixty percent of the county staff time was bought out to be devoted to training and monitoring of Families First Facilitators. Twenty hours of curriculum in each area were developed by specialists with input from facilitators, DHS personnel, and selected reviewers. Seven two-day training sessions (10 hours of instruction each) were conducted across the state for a total of 264 facilitators trained. Two follow-up training sessions were conducted for a total of approximately 175 facilitators each session. A certification process was developed to encourage facilitators to attend training and to implement the program.

Impact:
In evaluations of the training sessions, 97% of facilitators rated the trainers and the curricula as good or excellent, and 98% rated the overall training experience as good or excellent.

One Families First facilitator said "This was the most well-organized program and training I

have participated in. The trainers had it together, and they supplied material that will be very applicable to our clients."

Another facilitator trained through the Extension program said "This was the best and most helpful training I have attended since I began my job with Families First in 1996."

Approximately 75% of trained facilitators have implemented the PACE program to some degree. TDHS has made Families First participants who complete 80 hours of PACE training eligible for a $100 completion bonus.

Comments of Families First participants who have complete PACE classes include the following:

"I have also just finished a class called PACE. This has also helped to enrich my understanding of functioning as a single parent and trying to set myself up and maintain finances."

"My neighbors have commented that I don't yell at my kids as much as before. I told them I had been to parenting class and learned other ways to deal with them."

"I set rules for my children and I really did stick to them."

"Using 'I' messages to talk to children and get them to do what you want really does work."

"I learned how to deal with kids in different stages."

Facilitators have reported that PACE is the first DHS program that some of their participants have ever completed. Others have had participants want to continue to take the classes even after they have gotten jobs.

Funding Source:
Smith-Lever and State (Tennessee Department of Human Services)

Scope:
State Specific
****

Title:
Extension Bankruptcy and Financial Education

Description:
Working with one-time funding from a 1998 grant, six counties in West Tennessee developed a model two-year program which involved training local volunteer counselors–bankers, ministers, and others–to coach bankrupt families in sound financial management practices. A unique aspect of the program, and one the trainers felt contributed to its success, was that families were

enrolled near the end of their court supervision rather than at the beginning. This criteria, suggested by the liaison with the Trustee's Office, resulted in families that where more focused and open to financial information. A spin-off project of the original 'Broken Promises' program was DEBTS, a bankruptcy simulation activity used to educate counselors, coaches, and prospective filers about the bankruptcy process. With pending federal bankruptcy legislation requiring more filer education, a number of other organizations over the nation have shown interest in purchasing the DEBTS simulation materials, which should be packaged and ready for marketing by Spring 2001.

Impact:
West Tennessee families who continue to participate in bankruptcy and financial education classes have improved their collective savings/debt ratio by more than a million dollars. Families who have participated in the two year program have averaged increases in savings of over $1200, and debt reduction of over $2200. DEBTS, the training simulation developed by the team, will be available to trainers state- and nation-wide later in 2001. Already, the DEBTS team has been invited to demonstrate and discuss the bankruptcy training simulation at four major financial education conferences.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

Title:
" Mad About Clothes" - Financial and Consumer Education Through Clothing

Description:
Tennessee is projected to move into the top 15 states with the largest teen population growth by 2005. Montgomery Securities' analysis of the census data reveals that by targeting the top 15 states with the largest teen population, marketers can capture the spending power of 85% of the country's teenage population growth. Teens are often vulnerable to this type of marketing because they lack both financial and consumer skills.

"Mad About Clothes" is a curriculum developed to teach youth financial and consumer skills through their interest in clothing. The purpose of the curriculum is to teach skills in planning, decision making, comparison shopping and resource management. An important part of the curriculum is "Mall Mania." "Mall Mania" is a series of structured learning activities which take place in a retail environment. The University of Tennessee has partnered with local schools, volunteer leaders, and retail partners to teach Mad About Clothes. In-school 4-H lessons, special interest school series, summer camps and partnerships with retail partners have all taken place to teach Mad About Clothes.

Impacts:
Tennessee youth who participated in Mad About Clothes and Mall Mania improved their financial and consumer skills. Improvements included:

a. 88% of youth indicated they would change the way they planned to spend money for back to school clothes
b. 98% of youth after attending classes were able to distinguish between a fad and a fashion trend
c. 82% of youth after attending classes indicated they would do more comparison shopping for apparel items in the future
d. 35% of youth indicated a change in shopping priorities as compared to national statistics compiled by Teenage Research Unlimited. As a result of attending classes, style and cost were valued equally after the program. Pretest rankings had style ranked number 1 and price ranked lowest
e. Youth attending classes indicated the most important thing learned was the budgeting/spending plan for apparel

The Mall Mania series was submitted by one of the retail program partners to the International Council of Shopping Centers for consideration for the Maxie Award as a program of excellence. Mall Mania received recognition as a top ten finalist for the award.

Funding Source:
Smith-Lever and State

Scope:
State Specific
****

KEY THEME - WORKFORCE PREPARATION - YOUTH & ADULT

Title:
Workforce Preparation

Descriptions:
One of the five basic competency areas that have been identifies as essential for adult success in vocational competence. Youth must have a broad understanding of vocational options and of steps to act on career choices. They should understand how to prepare for their chosen career and have an understanding of the value and function of work.

“Learning A Living 2000" was an intensive summer camp focused specifically on workforce preparedness for youth in Knox and Blount counties. Forty youth, whom who had never been involved in 4-H programs, were identified to participate in the experience.

4-H Directions: Career Exploration Conference, Preparing Youth for the 21st Century Workplace was a conference conducted for the third time in 2000 for youth in West Tennessee.

The event promoted career exploration through hands-on learning experiences as youth worked to build personal and interview skills and general workplace competencies.

Digging Up Dirt on Careers was designed as a new career awareness effort with sixth grade 4-H members and has been supplemented by resources for agents to use as they work with career education 4-H programs.

Specific county program activities included:

In Davidson County, 244 youth participated in three one-hour sessions covering various topics on manners: best foot forward, it's easy to be polite, greetings and introductions, telephone manners, and table setting etiquette. These sessions were taught using videos, group discussions, hands-on experience, visuals, handouts and demonstrations. In the same county, 624 members were enrolled in 25 traditional 4-H clubs. TSU Extension agents developed and presented educational programs in the areas of parliamentary procedures, public speaking, written and oral communication using different teaching methods (group discussions, working in teams, using visuals, speaking, voting, research and exhibits).

In Jackson County, Extension staff designed and implemented an educational program to create a linkage between school and career and develop critical workplace competencies. Four hundred and eighty-five students participated in the program, which was conducted as a part of junior and junior high 4-H meetings and with high school economics classes. Topics covered included communication and interpersonal skills; career options; decision making; reaching group consensus; and how education impacts income and lifetime earnings.

In Knox County, discussion groups, demonstrations, workshops were presented in money management, Get A Summer Job, budgeting, gaining people skills, a job or career, Making Your Hobby Pay, Setting Up Shop, 4-H project skills, Character Counts! A special program , "4-H Mini-Society," was initiated.

In Sevier County, "Reality Check," a career/financial management simulation activity, was implemented at a middle school as a pilot program for jr. high Audiences. Two-hundred and fifty students participated from the 8th grade. Students were introduced to various careers and basic financial skills. Emphasis was placed on the importance of education and its impact on careers. Also, students were made aware of the "cost of living expenses" related to careers and family size. Twenty-one volunteers networked with the county Extension agent. Volunteers were from various community agencies such as Citizens National Bank, Sevier County Utility, Farm Bureau Insurance and community leaders from Sunrise Rotary Club.

Approximately 775 Weakley County junior high students participated in the "Welcome to the Real World" financial/money management program and simulation. Twenty-one high school students participated in a two-hour financial management program about credit.

Impacts:

Delegates to the Knox-Blount Counties Camp and the 4-H Directions: Career Exploration Conference were very positive about their experience at both conferences. Reflections indicated that they were gaining knowledge and skills as the event progressed. Of the forty participants in the Knox-Blount effort, thirty nine completed all parts of the program. Skills developed by participants included organization of information, career searching, money management, etiquette, interviewing, resume writing, business letter writing and conflict resolution. Knowledge was gained in appropriate dress, aspiration of career choices and personal responsibility needed to keep a job. Ninety-nine percent of the West Tennessee event participants agreed that they learned more about communication skills, managing time, identifying career interest, skills and attitudes needed in the workplace. Evaluations of the Digging Up Dirt on Careers curriculum materials have been very positive. Additional impact data will be available at the end of the 2000 school year.

Impacts from county programs included:

In Davidson County, the evaluation included a pre- and post-test of table etiquette and manners. Eighty-five percent (207 of the 224 participating youth) increased their knowledge of appropriate manners. The youth had an opportunity to observe each other's actions for correct behavior as a class assignment. Each participant demonstrated skills learned through role-playing.

In Jackson County, two hundred and fifteen 5th and 6th graders learned about verbal and non-verbal communication, improved listening skills and practiced good etiquette rules. Three hundred and sixty-one members participated in public speaking and demonstration contests. Two hundred 7th and 8th graders completed a personal interest checklist and were able to identify three career options based on their interests. They also participated in a workshop about their personality type to learn more about themselves and others.

Sixty-eight 11th and 12th graders participated in "Reality Check," a hands-on, real-life simulation involving using a given salary to purchase goods and services for one month. Ninety-two percent of the students answered yes to the evaluation question "Do you see a relationship between your education now and your future salary?" Student awareness increased in the following areas:

Making career choices
Making wise financial choices
Budgeting your money
Importance of staying in school and receiving a good education

Students were given an opportunity to respond to what they learned. Most frequent comments were: Get a good education; get a good job; save as much money as possible. One student wrote: "It was a good example of how life will be in a few years, so we will be better prepared to cope with it." Another said, "Reality Check, it will make you think about your future."

Knox County youth successfully operated business ventures demonstrating knowledge and skills obtained in life skills, job skills, communications, personal and interpersonal presentations. Of

the 36 senior/senior 4-H members graduating in Knox County, 26 have indicated that they have enrolled in college to prepare for a chosen profession; two have entered the military, eight have entered the workforce in business, technical fields and labor fields.

In the Sevier County program, each student mastered the skill of writing checks, and was involved in decision making skills based on their "pretend" budget and family needs. According to surveys, through students participation in "Reality Check":

A. 68% increased their awareness of the necessity of budgeting money and making wise financial choices.
B. 60% increased their thoughts concerning wise career choices.
C. 70% increased their realization of the added expense of children.
D. 63% showed an increased awareness of the importance of staying in school and receiving a good education.
E. 100% of the teachers and volunteer leaders expressed the activity was helpful to students and would be interested in helping again.

Ninety-seven percent of the Weakley County "Welcome to the Real World" participants learned how to do one or more of the following as a result of the program: write checks, balance a checkbook, open a savings account, keep track of savings, balance income and expenses, prepare a spending plan. Students have also taken the information home and shared it with family, resulting in a grandparent/guardian opening a checking account for the first time.

One hundred percent of the Weakley County participants in the financial management program reported a changed attitude about credit. Students reported a gain in knowledge about the pros & cons of credit. As a result of the program, students planned to eliminate the use of credit cards except in the event of an emergency.

Funding Source:
Smith-Lever, State and private donations

Scope:
State Specific
****

KEY THEME - FARM SAFETY

Title:
Tennessee AgrAbility Project

Description:
The Tennessee AgrAbility Project addresses the needs of farmers, farm workers and family members with disabilities through three major program efforts: (1) direct, on-farm education and assistance, (2) enhancing professional competencies and (3) public awareness and education.

The primary goal of the AgrAbility Project is to provide direct, on-farm services to assist farmers in identifying and implementing methods for coping with disabilities. Rural rehabilitation specialists conduct needs assessments, which begin with telephone conversations to determine needs and provide basic information, and farmers may elect to have an on-site assessment to evaluate needs and/or be referred to appropriate resources for assistance.

During on-site visits, project staff review accessibility and safety and suggested ways to enhance productivity and prevent secondary injuries. Particular areas of concern included the means of access to homes and work areas, bathroom facilities, fire safety and emergency procedures. The Tennessee AgrAbility Project also assists farm families in securing funding and other aid to obtain needed assistive technologies and modifications. Assistance includes both financial support and in-kind assistance such as volunteer labor to install ramps and make other needed improvements.

The Tennessee AgrAbility Project staff trains to professionals regarding the AgrAbility Project history, objectives and activities. Training increased professionals' understanding of methods used to increase accessibility of homes, offices, businesses and farm buildings and equipment. Training included group presentations and exhibits at professional meetings plus print media, exhibits, a World Wide Web site and the Tennessee AgrAbility Project "No Fences" newsletter. To further increase awareness and sensitivity toward the needs of individuals with disabilities, the Extension Service incorporated into the Communications training for agents and secretaries a section on working with people with disabilities.

Impact:
The Tennessee AgrAbility Project staff completed 50 on-farm assessments and conducted 5 housing assessments. Staff reviewed accessibility and safety and suggested ways to enhance safety to prevent secondary injuries.

The Tennessee AgrAbility Project assisted 25 farm families in locating funding sources and other aid to obtain assistive technologies and modifications to the home, farm structures and machinery which permitted increased independence, productivity and profitability. Assistance included both financial support and in-kind assistance such as volunteer labor to install ramps and make other needed improvements.

The Tennessee AgrAbility Project staff has presented training to more than 600 professionals. More than 8,000 individuals have participated in presentations and exhibits by Tennessee AgrAbility Project staff through various meetings, workshops, field days and farm tours. In addition, the No Fences newsletter and the Tennessee AgrAbility Project web site (http://bioengr.ag.utk.edu/extension/extprog/agrability) are providing public and professional exposure.

Funding Source:
Smith-Lever (3d farm Safety Funds and 3b&c) and State

Scope:
State Specific
****

B. STAKEHOLDER INPUT

Each department is engaging in strategic programmatic planning. In each case a wide range of stakeholders groups are represented. Individuals from these groups are invited to participate in the process.

Departments are in various stages of the programmatic planning process. Some are in the initial stages, while others have advanced to the point of having appointed standing advisory stakeholder committees.

The means of identifying stakeholder groups and individuals, naturally, varies among disciplines. In the case of Forestry, Wildlife and Fisheries Science, for example, interest groups ranging from environmental advocates, landowners, forest product companies and others were identified. From the identified groups, a balanced set of individuals wee selected for intensive input solicitation. These were invited to meetings on campus for the purpose of evaluating plans. Later, the group was formed into a standing advisory group which meets regularly and provides counsel on Extension, teaching and research issues. For example, stakeholders provided impetus for developing a Ph. D. in the department.

The process for consolidating departmental stakeholders into an Experiment Station wide organization is being planned.

The UT Agricultural Extension Service and TSU Cooperative Extension Program continue to use the network of county advisory committees that was described in the FY 2000-2004 Plan of Work. Both Extension organizations also continue to involve and utilize statewide advisory committees to provide direction for broader organizational issues.

In FY 2000, the UT Agricultural Extension Service initiated and completed a major strategic planning process. The strategic planning process began with a series of multi-county meetings held throughout the state attended by county stakeholders and Extension personnel. At these meetings, participants provided an enormous amount of information as to what they felt were the strengths, weaknesses, opportunities and threats (S.W.O.T.'s) for the Agricultural Extension Service. Including several similar meetings held for state-level personnel and stakeholders, a total of 50 S.W.O.T. meetings were held with 832 individuals participating.

The next phase of the process involved four district-level meetings and one state specialist-level visioning meetings to synthesize the results from the S.W.O.T. meetings into visions of what Extension should look like in the next five years. Meeting participants also identified potential obstacles that may be in the way of achieving those visions and possible strategies for

overcoming those obstacles. One hundred and eighty-nine people (stakeholders and Extension personnel) participated in these five meetings.

The next major step in the process was a state strategic planning meeting at the end of June. Results from the district and state specialist visioning meetings were brought to this meeting and synthesized into a statewide strategic plan. Forty-seven individuals, representing stakeholders, members of the State Extension Advisory Council and Extension personnel, participated in the state planning meeting. The statewide strategic plan identified a set of nine vision statements that describe what we hope Extension will look like in the next five years. The state group also identified nine possible obstacles that might prevent Extension from achieving its visions. The final phase of the state planning meeting was to identify strategies that would allow us to overcome those obstacles and achieve our visions. Ten strategies were identified.

Over 1000 individuals participated in the 56 strategic planning meetings held across the state. The results of these efforts are clear directions for Extension to follow in order to better serve the citizens of Tennessee. The next step in the process is the formation of action planning task forces to begin the implementation of the strategies. Three task forces were initiated at the end of 2000 and three more task forces will commence their activities in 2001. Task force members include Extension personnel and stakeholders. The task forces will develop plans that identify actions necessary to achieve identified goals from the strategic plan. The task forces will also develop time frames for the actions and identify those who will be responsible for accomplishing the actions.

C. PROGRAM REVIEW PROCESS

The program review process outlined in the FY 2000-2004 Plan of Work has not been changed.

D. EVALUATION OF THE SUCCESS OF MULTI AND JOINT ACTIVITIES

The multistate, multi-institutonal and multidisciplinary and joint research and extension activities, as in the past, were valuable in addressing the strategically important areas of needed focus. The annual planning sessions between research faculty and extension specialists are critical in developing research and education programs which effectively serve the Institute's clientele. Extension specialists, as a result of their ongoing contacts with clientele, contribute an awareness of strategic issues which need to be addressed. Moreover, research faculty contribute an awareness of scientific progress which has been made not only in their own laboratories but also within the scientific community at large. This latter awareness is greatly aided by their own participation in multi-state and interdisciplinary efforts.

By expanding the scope of joint activities, research programs have included more interaction with Tennessee State University. This interaction has led to a greater incorporation of minority clientele. Moreover, inclusion of broad advisory groups has expanded the scope of interest to other groups, including but not limited to environmental groups and production interests between

agricultural producers and consumers.

The extent to which planned programs described expected outcomes and effects varied by the maturity of the effort. The growing joint program in Food Safety described the desired outcomes in detail within a business plan. Alternatively, programs which incorporated new clientele were more general in nature.

Multi and joint activities by their nature direct programs toward greater effectiveness by incorporating various disciplines and functions into the planning process. Excellent examples may be found in the food safety program and the fruit and vegetable program. In these cases, the expertise of scientists from many disciplines and organizations were able to plan for the desired goals, helping assure that errors of exclusion were avoided. Moreover, the shared effort of multi-state programs such as precision agriculture consolidate the efforts of scientists with different but related interests and expertise to help assure rapid consolidation of developments.

E. MULTISTATE EXTENSION ACTIVITIES

SUBMITTED WITH FORM CSREES-REPT (2/00) UNDER SEPARATE COVER

F. INTEGRATED RESEARCH AND EXTENSION ACTIVITIES

SUBMITTED WITH FORM CSREES-REPT (2/00) UNDER SEPARATE COVER